SHIVAJI UNIVERSITY KOLHAPUR (M.S.)

CRITERIA-III

EVIDENCE(S) AS PER SOP

METRIC NO. 3.7.2	Number of linkages with institutions/industries for internship, on-the job training, project work, sharing of research facilities etc. during the last five years
1. E-copies of linkage related documents indicating the start date and completion date	

Note: The evidences for the said matrix are partly uploaded on NAAC portal and partly on university web portal. The web link is provided in the said matrix.

rediffmail

Mailbox of gaikwadsm

Subject: visit to insect museum

From: sunil gaikwad<gaikwadsm@rediffmail.com> on Tue, 15 Jan 2019 13:17:43

To: <entomology@tnau.ac.in>

Dear Sir,

416004

I wish to visit your Insect Museum on 6th Feb. 2019 along with my 10 M.Sc. II students (Er tomology See ... In By gu 1) me in this matter. Thanking you with regards, Dr. S.M. Gaikwad, M.Sc. Zoology, Ph.D.(Entomology) Department of Zoology, Shivaji University, Kolhapur. MAHARASHTRA, INDIA. Cell-+919604260460



Dr. S.M. Gaikwad <smg_zoo@unishinaji ac.in>

Sat 0%c 1, 2019 it 5:09 PM

Permission for visit

Dr. S.M. Gaikwad <smg_zoo@unishivaji.ac.in>

To: krushnamegh@ncbs.res.in

Cc: dagashe@ncbs.res.in

Dear Sir,

It is a pleasure to interact with you after many days. The reason for mailing now is that I would like to the clear of students of my entomology specialization to visit your museum on 11/12/2019 by 11 am. By this e-mail from action to allow this.

Thanking you with regards,

Yours sincerely,

Dr. Sunil M. Gaikwad Department of Zoology, Shivaji University, Kolhapur. Maharashtra. 416004, India. Ph. +919604260460

Inttos://mail.google.com/mail/w/0?ik=e6e0c60826&view=pt&search=all&permmsgid=msg-a%3Ar5554260387877567257&simp = trop(-; } 3 or 5.5 2303...

CamScanner

rediffmail

Mailbox of gaikwadsm

Subject: visit to entomology department

From: sunil gaikwad<gaikwadsm@rediffmail.com> on Tue, 15 Jan 2019 15:5::00

To: "kchandra58@yahoo.co.in"<kchandra58@yahoo.co.in>, "kchandra58@gmail.com"<kchandra58@cmalccr>

Cc: "viraktamath" < viraktamath@rediffmail.com>

Respected Sir,

A group of 10 M.Sc. II students (Entomology Special) wish to visit your department (Dr. Virakthmath S r's Lab. or 4 h Feb. 2019 along with me. Kindly permit us to visit. Our students will be benefited from this in the subject knowledge. Thanking you with regards,

Dr. S.M. Gaikwad, M.Sc. Zoology, Ph.D.(Entomology) Department of Zoology, Shivaji University, Kolhapur. MAHARASHTRA, INDIA. Cell-+919604260460 416004

of Manarasmire enculture vevelopment Officer - Grace Tistrict Sericulture Office Koffiantermment of Maharashtra Strict Sericulture Office, Kolhapur of F Ward Vapar Petris Sericulture Office, Kolhapur 26400 Vard, Vyaparipeth, Shahupuri, Kolhapur-416001 Phone No. and Fax No. :- 0231-2666682. Email Id :- reshimkolhapur@gmail.com

Ref: DSO/EXTN/2018/112

Date :- 16 03 2018

To, Dr.A.D.Jadhay Assistant Professor. Department of Zoology, Shivaji University, Kolhapur

Respected Sir,

We are very much thankful to you for your Extension Services for Laxmiwadi village, Taluka Hatkangale, Sericulture farmers on Management of Chawki Rearing & lateage Silk Warm Rearing on 22 March 2018, We hope you will extend the same co-operation in future also.

Thanking you

Sericulture Development of Grade -2



Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Visit to LaCONES - 10.2.2017

2 messages

Lacones lacones@ccmb.res.in

Fri, Feb 10, 2017 at 12:33 PM

To: "Dr. P S Raju" <rajucsir@ccmb.res.in>, mvdrsanthakumar@gmail.com

Cc: B Sambasiva Rao <sambasiva@ccmb.res.in>, "Afsar soghra\"Sent" <soghra@ccmb.res.in>, S Rajyalakshmi <rajyalakshmi@ccmb.res.in>

boxbe Lacones (lacones@ccmb.res.in) is not on your Guest List | Approve sender | Approve domain

50 M.Sc. zoology students of Kolhapur Shivaji University, Maharashtra along with faculty member will be visiting LaCONES today i.e., on February 10, 2017 at 3.00 PM. The following is the programme:

3.00 pm - Arrival

3.00-3.30 pm - Welcome and screening of LaCONES movie

3.30-4.00 pm - Interaction with Dr. Sambasiva Rao and visit to other facilities

4.00-4.30 pm - Tea and biscuits at canteen on payment basis

- Departure

Requesting Dr. Santa Kumar to take the group photograph of your visit and to be sent at lacones@ccmb.res.in Mrs. Soghra to meet the visitors on arrival and play the movie and organize the interaction talk with Dr. Sambasiva Rao in the auditorium.

Mrs. Rajyalakshmi to arrange for refreshments

Regards

Karthikeyan Vasudevan Ph.D. Senior Principal Scientist Laboratory for the Conservation of Endangered Species (LaCONES) Centre for Cellular and Molecular Biology 162 Pillar, PVNR Expressway, Attapur Ring Road, Hyderguda, Hyderabad 500 048

Office: +91-40-24006443 fax: +91-40-24006441 Cell: +91-9491036403

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Fri, Feb 10, 2017 at 1:34 PM

To: Lacones <lacones@ccmb.res.in>

Respected Sir,

Thank you verymuch. We will be reaching there by 3.00 pm.

Dr.Santha Kumar. (9130023099 /9434055590)

On Fri, Feb 10, 2017 at 12:33 PM, Lacones lacones@ccmb.res.in wrote:

boxbe Lacones (lacones@ccmb.res.in) is not on your Guest List | Approve sender | Approve domain

50 M.Sc. zoology students of Kolhapur Shivaji University, Maharashtra along with faculty member will be visiting LaCONES today i.e., on February 10, 2017 at 3.00 PM. The following is the programme:

3.00 pm Arrival

3.00-3.30 pm - Welcome and screening of LaCONES movie

3.30-4.00 pm - Interaction with Dr. Sambasiva Rao and visit to other facilities

4.00-4.30 pm - Tea and biscuits at canteen on payment basis

4.30 pm - Departure

Requesting Dr. Santa Kumar to take the group photograph of your visit and to be sent at lacones@ccmb.res.in Mrs. Soghra to meet the visitors on arrival and play the movie and organize the interaction talk with Dr. Sambasiva Rao in the auditorium.

Mrs. Rajyalakshmi to arrange for refreshments

Regards

Karthikeyan Vasudevan Ph.D. Senior Principal Scientist Laboratory for the Conservation of Endangered Species (LaCONES) Centre for Cellular and Molecular Biology 162 Pillar, PVNR Expressway, Attapur Ring Road, Hyderguda, Hyderabad 500 048

Office: +91-40-24006443 fax: +91-40-24006441 Cell: +91-9491036403



anna gophane <anna.gophane@gmail.com>

Regarding accommodation for students

3 messages

anna gophane <anna.gophane@gmail.com>

To: directornbaii@gmail.com Cc: shyleshaan.nbaii@gmail.com Fri, Feb 1, 2019 at 8:08 PM

Respected Sir/Madam

A group of 10 students and 1 teacher of Department of Zoology, Shivaji University, Kolhapur (MH) is going to visit your reputed research institute during 4th to 6th of February 2019. I request you to kindly arrange accommodation at your trainee hostel. Among 10 students there are 7 girls, 3 Boys and 1 gents staff so please arrange accordingly.

Expecting your kind cooperation and earlier response Thanking you

Anna Gophane Assistant Professor Department of Zoology Shivaji University, Kolhapur

Arakalagud Nanjundaiah shylesha <anshylesha@gmail.com>

Sat, Feb 2, 2019 at 11:45 AM

To: anna gophane <anna.gophane@gmail.com>

I enquired from guest house incharge. Sorry no accommodation available. shylesha

[Quoted text hidden]

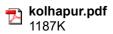
Dr. A.N. Shylesha,

Principal Scientist Entomology, ICAR-National Bureau of Agricultural Insect Resources (NBAIR) P.O. Box No. 2491, Hebbal Agricultural Farm Post,

Bellary road, Hebbal, Bangalore 560 024. 08023511982,(ext.341),(M). 91-9480424706

Fax. 080-23411961

email: anshylesha@gmail.com



NBAIR Guesthouse <guesthousenbaii@gmail.com>

Sat, Feb 2, 2019 at 11:49 AM

To: anna.gophane@gmail.com

Dear Sir

With reference to your email dated 1.2.19, due to prior booking of rooms at NBAIR guest house for officials on said dates, room is not available at NBAIR guest house. The inconvenience is deeply regretted. Regards,

On Fri, Feb 1, 2019 at 8:51 PM Director NBAIR <a href="mailto:sirche-under state-under sta

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलूरु [Quoted text hidden]

Satendra Kumar, NBAIR

Note:

- Guest room charges will be based on the person residing in the room not the person who has booked.
- Identity card is must as proof for employee/staff, issued by their Institute/organization to stay in the room.
- Priority would be in order of ICAR/SAU/Gov. of India/PSU/Pvt.
- Identity card is must as proof for private persons to stay in the room.
- Room booking will be Maximum for 5 days only.



Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com >

Request for permission to visit the Institute... reg.

5 messages

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> To: directornbaii@gmail.com Fri, Nov 29, 2019 at 1:37 PM



20191129_123219.jpg 4147K

HRD NBAIR <hrd.nbair@gmail.com>

Thu, Dec 5, 2019 at 2:37 PM

To: gaikwadsm@rediffmail.com, mvdrsanthakumar@gmail.com
Cc: Chandish Ballal <ballalchandish@gmail.com>, Rajagopal Rangeshwaran <rangeshw@gmail.com>, Y Lalitha
<ylalitha3112@yahoo.co.in>, Yadavalli Lalitha <ylalitha31121961@gmail.com>, Pralhad Sonkusare
com>

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer
Division of Germplasm collection and characterization
ICAR- National Bureau of Agricultural Insect Resources
P. Bag No. 2491, H.A. Farm post
Bellary Road, Bengaluru - 560 024
Karnataka, India
Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR directornbail@gmail.com wrote:

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> To: HRD NBAIR <hrd.nbair@gmail.com>

Thu, Dec 5, 2019 at 2:49 PM

io. Til D 1457 in C 4 ii a.ii baii @gii aii. 30 iii

Thank You Very much Sir for your kindness to allowing our students to your esteemed Institute. This well help them in visualising their theoretical knowledge of Agricultural Entomology. Dr. S.M.Gaikwad, our Faculty member will be guiding these students during the visit. He will be in touch with you.

With kind regards,

Yours sincerely,

Dr. V.S. Manne,

Head,

Department of Zoology,

Shivaji University,

Kolhapur.

On Thu, 5 Dec 2019, 2:39 pm HRD NBAIR <hrd.nbair@gmail.com wrote:

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR <directornbaii@gmail.com> wrote:

धन्यवाद

Chandish R. Ballal

Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com >

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

To: Sunil Gaikwad <gaikwadsm@rediffmail.com>

Thu, Dec 5, 2019 at 2:50 PM

----- Forwarded message ------

From: HRD NBAIR <hrd.nbair@gmail.com>

Date: Thu, 5 Dec 2019, 2:39 pm

Subject: Re: Request for permission to visit the Institute... reg.

To: <gaikwadsm@rediffmail.com>, <mvdrsanthakumar@gmail.com>

Cc: Chandish Ballal ballalchandish@gmail.com, Rajagopal Rangeshwaran rangeshw@gmail.com, Y Lalitha

<ylalitha3112@yahoo.co.in>, Yadavalli Lalitha <ylalitha31121961@gmail.com>, Pralhad Sonkusare

pralhad.ks@gmail.com>

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization ICAR- National Bureau of Agricultural Insect Resources P. Bag No. 2491, H.A. Farm post Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR director: NBAIR director: NBAIR <a href="m

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Thu, Dec 5, 2019 at 2:50 PM

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

To: Sunil Gaikwad <gaikwadsm@rediffmail.com>

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Thu, 5 Dec 2019, 2:49 pm

Subject: Re: Request for permission to visit the Institute... reg.

To: HRD NBAIR <hrd.nbair@gmail.com>

Thank You Very much Sir for your kindness to allowing our students to your esteemed Institute. This well help them in visualising their theoretical knowledge of Agricultural Entomology. Dr. S.M.Gaikwad, our Faculty member will be guiding these students during the visit. He will be in touch with you.

With kind regards, Yours sincerely, Dr. V.S. Manne, Head. Department of Zoology, Shivaji University, Kolhapur.

On Thu, 5 Dec 2019, 2:39 pm HRD NBAIR hrd.nbair@gmail.com wrote:

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization ICAR- National Bureau of Agricultural Insect Resources P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR director: NBAIR director: NBAIR <a href="m

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

WORK IS WORSHIP

Principal: Dr. V. W. Patil M. A., M. Phil., Ph. D.

: 0231-2621187, 2621180 Phone

E-Mail : nck@newcollege.ac.in nck30.cl@unishivaji.ac.in

Website: www.newcollege.ac.in



SHRI PRINCE SHIVAJI MARATHA BOARDING HOUSE'S

(Awardee of 'An Ideal Institution' by Government of Maharashtra)

THE NEW COLLEGE, KOLHAPUR

ARTS, COMMERCE, SCIENCE, B.C.S., B.C.A. & B.B.A.

Affiliated to Shivaji Unversity, Kolhapur & Reaccredited by NAAC (with 'B' Grade)

1062, 'A' Ward, Shivaji Peth, Kolhapur - 416 012, Maharashtra

Ref. No.: NCK: 2882 /2019

प्रति.

मा. विभागप्रमुख,

डॉ. एम. व्ही. शांताकुमार,

प्राणिशास्त्र विभाग, शिवाजी विद्यापीठ, कोंल्हापूर.

Date: 06/12/2020



विषय : बी.एस्सी.भाग दोन व तीन प्राणीशास्त्र विभागातील विद्यार्थ्यांच्या अभ्यास सहली बाबत...

महोदय.

वरील विषयास अनुसरुन, आपल्या ग्राणिशास्त्र विभागामधील ॲनिमल हाउस आमच्या विद्यार्थ्यांना पाहण्यासाठी व सखोल अभ्यास करण्यासाठी दि. १०/०२/२०२० रोजी आपली परवानगी मिळावी. ही विनंती.

आपला विश्वास्

(डॉ.व्ही.एम.पाटील)

प्राचार्य. न्यू कॉलेज, कोल्हापूर भ

Sri. Yogesh Mane,

Please note.

81. 2020.

रयत शिक्षण संस्थेचे.



कर्मवीर भाऊराव पाटील महाविद्यालय, पंढरपूर (रवायता)

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ, सोलापूर संलग्नित कर्मवीर पथ, पंढरपूर - ४१३ ३०४, जि. सोलापूर (महाराष्ट्र)

Jr. College Index No. : J 24.08.001

ন্ত ऑफस : (০२৭८६) २२३৭०४ * E-mail : kbppandharpur@gmail.com * Website : www.kbpmpandharpur.in

संस्थापक : पदाभूषण डॉ. कर्मवीर भाऊराव पाटील क्रा.लट,

'A+' सी.जी.पी.ए. : 3.49 (२०१७ पासून)

डी.एस.टी.-फिस्ट योजना भारत सर्कार (२०१३ पासून)

आदर्श महाविद्यालय पारितोषिक पु.अ.हो, सोलापूर विद्यापीठ, सोलापूर व रयत शिक्षण संस्था, सातारा

यु.जी.सी. सी.पी.ई. दर्जा (2096-96)

परामर्श योजना (2099-20)

जा. क्र. 1407 /2019-20 दिनांक: 20/01/2020

प्राचार्य डॉ. अशोक एस्. भोईटे एम्.एस्सी, पीएच्.डी.

मा. विभागप्रमुख, प्राणीशास्त्र विभाग, शिवाजी विद्यापीठ, कोल्हापूर

विषय: प्राणीशास्त्र विभागाचे म्यूझीयम पाहण्यास परवानगी मिळणेबाबत....

महोदय.

आमच्या महाविद्यालयातील बी. एस्सी. भाग ३ प्राणीशास्त्र विषयाची शैक्षणिक सहलदि. ०१/०२/२०२० रोजी स. ११.०० वाजता आपल्या विभागास भेट देणार आहे. सदरची सहल आपल्या विभागातील म्यूझीयम पाहणार आहे. तरी आमच्या विध्यार्थ्यांना म्यूझीयम पाहण्यास परवानगी मिळावी हि विनंती.

कळावे.

Meanitted.

Meanitted.

Si. Viogally Lane.

27.01.2020

आपला विश्वास्

क. भा. पाटील महाविद्यालय,

पंढरप्र



Principal Dr. Salunkhe S. T. M.Sc., Ph.D., M. B. A.

"Education through self-help is our motto" Karmaveer

Rayat Shikshan Sanstha's Rajarshi Chhatrapati Shahu College, Kolhapur Tal-Karvir, Dist-Kolhapur 416 003 Phone No.0231-2654658 NAAC accreditation A (CGPA3.07)

E-mail -klpshahucol@gmail.com Website - www.rcshahucollege.in

Estd-1961

Ref. No. /2019-2020 Dt. 22/01/2020

To,

The Head,

Zoology Department,

Shivaji University,

Kolhapur.

Subject: Permission to visit the department

Respected Sir,

With reference to above mentioned subject, our 62 students of B. Sc. I Zoology students are willing to visit the Zoology Department, Shivaji University, Kolhapur on Friday, 24th January 2020. So, I request you to grant permission for this study tour.

Thanking you.

Head of Department

Department of Zoology

Rajarshi Chh. Shahu College



मंजुरी क्र. व दि. S.S.N. 1584/23761 Date 3-1-85 डायस नं. 27340503902

श्री नृसिंह शिक्षण प्रसारक मंडळ सांगवडे, ता. करवीर संचलीत.

न्यू इंग्लिश स्कूल, सांगवडेवाडी

शा. क्र. 23.08.027, सांगवडेवाडी, ता. करवीर, जि. कोल्हापूर. फोन : 0231-2676575

संपर्क : 9921404293, 7744096210

जा. क्र.

R. 22/01/2020

मा - विभाग निपुत्व

पाणीशाका विभाग

ारीवाजी विद्यापीठ, कोन्हापुर

विषय न अपासियाम , जाल, मामक्षारकीय (high power) ने विद्यारकीय

HEIGH

भी पारित N's विद्यान विश्वासी प्रदेश किया किया स्थान स्थान

chand

कामका विश्वार्य

मुख्याध्यापक

न्यू इंग्लिश स्कूल सांगवडंवाडी

Sri. 408est named

Sri. Primamen Patsl.,

Primamen Patsl.,

Please do Se needful.

22.01.2020.

Phone: Office: 08338-220112, Website: www.devchandcollege.org

Principal Cell: 9901573365

email: devchand_college@rediffmail.com principal@devchandcollege.org



Janata Shikshan Mandal's

DEVCHAND COLLEGE

(Jain Religious Minority Institution)

Arjun Nagar, Tal. Kagal, Dist. Kolhapur, Near NIPANI, PIN - 591237 (Affiliated to Shivaji University) 'A' Grade Accredited by NAAC (3rd Cyle)

Jr. Code - 23.07.001

M.C.V.C. Code - 23.07.901

U-Dise No. - 27340806306

Ref. No. :

Date: 28/12/2019

Govt. App. Notification (AFF) Dt. 7-11-1969

Jr. College - HSC -1076/419XX-XII Dt. 6th May 1976

Principal:

Dr. P. M. Herekar

M. Com. M. Phil. Ph. D.

To,
Itead of Zoology
depattment
Shivaji University
Yidhyanagat Kalhapur

Subject: Regarding permission to visit zoology

department, Shivaji University, Kolhapur.

Dear Sir,

With reference to the above subject mentioned we would like to request you that, Department of Zoology of my college has arranged study tour for B.Sc-I and wish to visit your department. Sixty students from B.Sc I, four teaching staff members and one non-teaching staff member will participate in this study tour. Kindly give permission and oblige.

Thanking you.

Yours Sincerely,

30:12.4

Visited Museum of Departmental Setup with Laborentonies Park

SCMT'S CHHATRAPATI SHAHU VIDYALAYA NEW PALACE AREA, KOLHAPUR CBSE SECTION

From.

Date: 19th November, 2019

Chhatrapati Shahu Vidyalaya CBSE New Palace Area Kolhapur.

To,

Department Head Zoology Department, Shivaji University, Kolhapur.

Subject: Application requesting permission to visit Zoology Dept.

Respected Sir,

The students of Chhatrapati ShahuVidyalaya, would like to visit Zoology Department and learn the working of the same. They would also be accompanied by their respective staff. We kindly request you to permit us to visit the same and learn the necessary details. The details of the proposed visit are mentioned at the end. Please communicate the permitted official timings of the visit to us.

In anticipation of a positive reply.

Thanking You

ours truly,

Mrs.Pooja Chopra

(Principal)

ChhatrapatiShahuVidyalaya

Class:9th A+B+C Timing-10.15am

Number of Students: 95 Staff accompanying: 3 + 2 Permitted.



0/w: Shantiniketan/4498/2019-20

Date: 14/10/19

To, HOD, Dept. of Zoology, Seri Biological Lab, Shivaji University, Kolhapur.

Subject: Permission for field visit to Zoology department.

Respected Sir,

We would like to send class VI students of our school to visit the Zoology department, Shivaji University, Kolhapur. The details are mentioned below.

We request you to kindly permit us to visit the department.

This opportunity will enlighten the students.

Thanking you in anticipation.

Date: 17/10/2019.

Day: Thursday.

Time: 10:35 to 12:35. No. of students: 217.

Sincerely yours,

Mrs. Jayshree Jadhav

Principal PRINCIPAL Dr.D.Y.Patil Academy Shantiniketan, Kolhapur. Confirmed!

Received has



श्रीदत्ताबाळ मिशन डिव्हाइन संचलित

श्रीदत्ताबाळ विद्यामंदिर (प्राथमिक) श्रीदत्ताबाळ शिशुविहार (बालवाडी)

७३९/ए, कसबा बावडा, डी. एस. पी. ऑफीस समोर, कोल्हापूर - ४१६ ००३ फोन - २५३८८६२



संदर्भ :

दिनांक:

To,

The head, Department Of Zoology, Shivaji University, Kolhapur.

Sub:- Seeking Permission to visit Department of Zoology, Shivaji University, Kolhapur.

Respected Sir/ Madam,

The Shri Dattabal Vidyamandir (Primary School) , 739/A, front of S.P. Office ,Kasaba Bawada, Kolhapur offering education from 1st to 4th standard. Seeks Permission to 4th standard students to visit your Zoology Department.

As part of the curriculum of 4th standard students scientific study visit is mandatory. As your Zoology Department provides our curriculum scientific demand, so we request you the Zoology department visit. Kindly accord permission to Visit Zoology Department for a team 103 (100 student +3 faculty) on 16 th September 2019.

Your co-ordination in this regard will not only help the cause of education but will also strengthen the children of the nation.

With Regards,

Dattatray V. Patil

Head Master,

Shri Dattabal Vidyamandir.

Contact No.

Dattatray V. Patil - 9145298611 Rohini K. Shevale - 8830742060

Permitted Lutha Lie

मुख्याच्यापक श्री दत्ताबाळ प्राथमिक विद्यामंदिरे कोल्हापुर



उद्यमेन हि सिध्यति: कार्याणि मन्नारथै: Jaywant Pratisthan Humgaon Sanchalit,

Amdar Shashikant Shinde Mahavidyalay, Medha

Tal- Jawali, Dist- Satara

President: Hon. M.L.A. Shashikant J. Shinde

Principal: Dr. M.B. Waghmode

(M.A., M.Phil., Ph.D., G.D.C. & A)

Office: 02378-285645.

Email: accmedha@yahoo.com,

Web: www.assmmedha.edu.in

Date:

Ref. No.: To,

Head

Department of Zoology,

Shivaji University, Kolhapur

Subject:- Regarding visit to Department of Zoology(SUK).....

Respected Sir,

We planned to visit Department of Zoology, Shivaji University, Kolhapur on 6th March 2019 as study tour is required for syllabus. So, please grant us permission to visit your department.

Thanking you,

Yours faithfully,

Department Of Zoology Amdar-Shashikant Shinde Mahavidyalay, Medha.

FWD through,

Amdar Shashikani Shindo Mahashiyalo; Medha, Tal. Jaon, Dist. Salara

Dr. Manne V. S.

Head.

Danartment of Zoology Shiven University, Kolhapur M/s. Halima Ustad

Head Mistress

St. Mary's School, KOLHAPUR

Ph. No.: 521283

500

ST. MARY'S SCHOOL,

Rajarampuri, 13th Lane, Kolhapur - 416 008

Ref. No.: SMS/2018-19/147

To,
The H.O.D
Zoology Department.
Shivaji University,
Kolhapur.

Date: |6|02|19

Subject: Permission to observe Museum of Zoology Department.

Respected Sir,

I, the Principal, Ms. K. J. Ustad of St. Mary's School, Kolhapur, request you to kindly give us permission to observe the Museum of Zoology Department. Now –a- days our syllables includes classification of animals so to give more information about animals to our students we want them to visit your department.

I will be obliged if you grant us the permission

and do the needful.

Thanking you,

9822494450 Usterd madem. Yours faithfully,

Headmaster /Headmistress St. Mary's Secondary School

Rajarampuri, Kolhapur

Permitted & Southa har

P. B. No. 28 Jr. College Code : J.24.05.002 MCVC Code : J.24.05.901

II Tewo Sada Dnyanmaya Pradeep II Shikshan Prasarak Mandal's

Phone/Fax: (02185) 222088 E-mail: smmakj@yahoo.com Website: www.smmakluj.ac.in

Shankarrao Mohite Mahavidyalaya

Akluj 413101Tal. Malshiras Dist. Solapur (M.S.)

NAAC Re-accredited at B grade

(Affiliated to Solapur University)

Founder: Sahakar Maharshi Shankarrao Mohite-Patil
President: Shri. Jaysinh Shankarrao Mohite-Patil (B.A.Hon.)

M.Sc. Ph.D

।। तेवो सदा ज्ञानमय प्रदीप ।। Principal Dr. A. L. Deshmukh

Ref. No.: SMM/

To,
The Department of Zoology
Strivaji University,
koltapur

Sub: Regarding Permission to see the Firm / Institute.

Respected sir,

The bonafide party of this college including 13 students of B.Sc.III and 04 staff is on the excursion on 5th February 2020. Kindly extend your valuable co-operation and oblige. Thanking You.

 Shankarrao Mohite Mahavidyalaya Akkul Pin-413101 Model English Education Society's

SHARDA MAHAVIDYALAYA (Arts & Science) PARBHANI.

ated to Swami Ramanand Teerth Marathwada University, Nanded) Near Govt. Hospital, Subhash Road, Parbhani - 431 401, (Maharashtra) India.

Ph. (02452) 227550 Fax: (02452)227558 Website- www.shardacollege.co.in E-mail-shardacollege 230@yahoo.co.in NAAC 'B' Grade

Mr. Anil Hemraj Jain Secretary

Dr. Wamanrao Jadhav Principal

O.W. SMP/230/2018-19/ 51

Date: 31/01/2019

To.

Head of Department,

Department of Zoology,

Shivaji University, Kolhapur.

Subject: Regarding visit to the Museum

R/Sir,

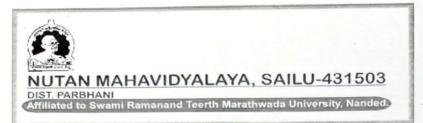
With reference to subject cited above, Sir we have organized a study tour for our B.Sc. students on 06 Feb. 2019. During this study tour, we want to visit our Departmental museum to get knowledge about variety of animals.

So, please kindly permit us and do the necessities for the same.

Thanks;

Enclose: List of students & faculty Svi Deruk bil,
Please Permit.

PRINCIPAL Sharda Mahavidyalaya Parbhani



NMS/EST/2018-2019

Tel:(02451)222004, 223080, (R):222427 E-Mail: principalnutan@rediffmail.com

Date-25/1/2019

NMS/EST/2018-19/209

To,

The Head,

Department of Zoology

Shivaji University

Kolhapur.

Subject- Permission to visit the Department.

Respected Sir,

With reference to the subject noted above, the study tour of B.Sc. Third Year (Biology) students of our college is scheduled to visit your Department & Museum on 29/01/2019. Please, co-operate them.

Total students 23 and Teachers 02

Do the needful and oblige.

Thanking you

Yours

Water Mahavidyateys



रयत शिक्षण संस्थेचे,

कर्मवीर भाऊराव पाटील महाविद्यालय, पंढरपूर

(सोलापूर विद्यापीठ, सोलापूर संलक्षित) (कला, विज्ञान, वाणिज्य आणि व्यवसाय अश्यासक्रम)

नॅक मुल्यांकन श्रेणी 'A+' (CGPA 3.51)

Jr. College Index No. : J 24.08.001

U-DISE No. : 27300810371

यु.जी.सी. कडून सी.पी.ई. दर्जा प्रदान

सोलापूर विद्यापीठ, सोलापूर कडून उत्कृष्ठ महाविद्यालय पुरस्कार

संस्थापक : पदाभूषण डॉ. कर्मवीर भाऊराव पाटील _{डी.लिट.}

जा. क. 1793 18-19 दिनांक : 19 61 2019 प्राचार्य डॉ. अशोकराव एस्. भीईटे, एए.एस्सी. पीएव.डी.

दि. १९/०१/२०१९

मा. विभागप्रमुख, प्राणीशास्त्र विभाग, शिवाजी विद्यापीठ, कोल्हापूर. 41600 4

महोद्य,

आमच्या महाविद्यालयातील बी. एस्सी. भाग दोन (वनस्पतीशास्त्र व प्राणीशास्त्र) वर्गातील १८१ विद्यार्थी व ८ स्टाफ मेंबर्स दि. २३/०१/२०१८ रोजी आपल्या विभागास भेट देणार आहेत. तरी कृपया त्यांना विभागाची माहिती देण्याची व्यवस्था करावी ही विनंती.

कळावे,

आपला विशासू,

कर्मवीर भाऊराच पाटील,

ॣ महाविद्यालय, पंढरपूर.

de

SG ASTELL BANG ORGER FRANCE



Principal Dr. Salunkhe S.T. M.Sc., Ph.D., MBA "Education through self-help is our motto" Karmaveer

Rayat Shikshan Sanstha's Rajarshi Chhatrapati Shahu College, Kolhapur

Tal-Karvir, Dist-Kolhapur 416 003
Phone No.0231-2654658

NAAC Reaccreditation 3rd Cycle A (CGP 3.07)
E-mail - klpshahucol@gmail.com

Website - www.rcshahucollege.in
Estd- 1961

Ref 1450/2020/21 No.

Dt. 1/1/2020

To,

The Head

Department of Zoology

Shivaji University,

Kolhapur.

Sub: Permission to visit Zoology Department.

Respected Sir,

Our college is organizing one week duration Rayat Inspire Programme for 11th std. students to cultivate scientific temper and awareness about research amongst these students. As part of this programme we are organizing study visit to your department on 07/01/2019 between 11.00 am to 2:00pm.

Herewith request you to give permission to visit your department. Thanking you,

Coordinator

Rayat Inspire Programme

Promitted)
Promitted)

R. C. SHAHU COLLEGE KOLHAPUR

Yours faithfully,

Prof. CHOS) S. A. Deshandel

H.O.D Zool.

5. D.S. M. College Palghar 1.10.18

The.

The. H.OD. Dept of Zorlogy

Sub- Permission to vist. Zoology Dept.

Sir

We illu Brof. & students of 5. D.S. M.

College Palghar wants to visit zerlugy Dept.

Around 60 student & Few Prof. visiting dept.

kindly pernit us to visit dept of

Zavlogy on 1.10.18

Thanking You

Dr. S. M. Gaillemad & R.,
Permitted Southon Lar
Dr. Manne V. S.

Dr. Manne V. S.

Head,

Department of Zoology
Shivaji University, Kolhapur

Your's Faithfully S. Deshmon

CMn: S.A. Deshaulch



Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Fwd: Visit of students to your reputed Institute CCMB, Hyderabad

1 message

anna gophane <anna.gophane@gmail.com> To: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> Sat, Feb 23, 2019 at 11:04 PM

----- Forwarded message ------

From: anna gophane <anna.gophane@gmail.com>

Date: Sat 23 Feb, 2019, 11:03 PM

Subject: Visit of students to your reputed Institute CCMB, Hyderabad

To: <priya@ccmb.res.in>

Hello sir/Madam.

A group of 11 students of M. Sc. Part II zoology (Cell Biology specialization) along with one Staff member is planed to visit to your reputed instutite, CSIR- center for Cellular and Molecular Biology, Hyderabad. Student would like to seek information about working of your institute and remarkable breakthroughs your institute contributed to science. We would like to visit your Lacones in laboratories for conservation.

Please, kindly allow and organise our visit.

Details of visit:

Institute Name: Department of Zoology, Shivaji University, Kolhapur, Maharashtra.

No. Of Students: 11 No. Of staff: 01

Date of Visit: 25 -27 th February 2019 (any one day and time you find convenient)

Expecting positive and early response

Thanking you



Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com >

Request for permission to visit your Institute....reg.

2 messages

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Sun, Feb 5, 2017 at 6:17 PM

To: priya@ccmb.res.in, coa@ccmb.res.in, avrao@ccmb.res.in, director@ccmb.res.in

I along with Dr.S.R. Yankachi, Assistant Professor visiting Hyderabad during 6-2-2017 to 10-2-2017. We are escorting 50 M.Sc. Part II students for their study tour. During this tour, we would like to visit your esteemed Institute on 8-2-2017 at 10.00 a.m. onwards for appraising our students about the latest research trends in the field of Cellular & Molecular Biology. Kindly giver us permission to visit your Institute and make necessary arrangement for visiting important research Laboratories.

This is for your kind permission and needful.

Thanking you.

Yours faithfully, Dr.M.V. Santha Kumar, Associate Professor, Departmnet of Zoology, Shivaji University, Kolhapur, 9130023099, 9434055590

COA <coa@ccmb.res.in> Reply-To: COA <coa@ccmb.res.in> To: mvdrsanthakumar@gmail.com

Sun, Feb 5, 2017 at 6:08 PM

Message seen by the recepient

rediffmail

Mailbox of gaikwadsm

Subject: visit to insect museum

From: sunil gaikwad<gaikwadsm@rediffmail.com> on Tue, 15 Jan 2019 13:17:43

To: <entomology@tnau.ac.in>

Dear Sir,

416004

I wish to visit your Insect Museum on 6th Feb. 2019 along with my 10 M.Sc. II students (Er tomology See ... In By gu 1) me in this matter. Thanking you with regards, Dr. S.M. Gaikwad, M.Sc. Zoology, Ph.D.(Entomology) Department of Zoology, Shivaji University, Kolhapur. MAHARASHTRA, INDIA. Cell-+919604260460



Dr. S.M. Gaikwad <smg_zoo@unishinaji ac.in>

Sat 0%c 1, 2019 it 5:09 PM

Permission for visit

Dr. S.M. Gaikwad <smg_zoo@unishivaji.ac.in>

To: krushnamegh@ncbs.res.in

Cc: dagashe@ncbs.res.in

Dear Sir,

It is a pleasure to interact with you after many days. The reason for mailing now is that I would like to the clear of students of my entomology specialization to visit your museum on 11/12/2019 by 11 am. By this e-mail from action to allow this.

Thanking you with regards,

Yours sincerely,

Dr. Sunil M. Gaikwad Department of Zoology, Shivaji University, Kolhapur. Maharashtra. 416004, India. Ph. +919604260460

Inttos://mail.google.com/mail/w/0?ik=e6e0c60826&view=pt&search=all&permmsgid=msg-a%3Ar5554260387877567257&simp = trop(-; } 3 or 5.5 2303...

CamScanner

rediffmail

Mailbox of gaikwadsm

Subject: visit to entomology department

From: sunil gaikwad<gaikwadsm@rediffmail.com> on Tue, 15 Jan 2019 15:5::00

To: "kchandra58@yahoo.co.in"<kchandra58@yahoo.co.in>, "kchandra58@gmail.com"<kchandra58@cmalccr>

Cc: "viraktamath" < viraktamath@rediffmail.com>

Respected Sir,

A group of 10 M.Sc. II students (Entomology Special) wish to visit your department (Dr. Virakthmath S r's Lab. or 4 h Feb. 2019 along with me. Kindly permit us to visit. Our students will be benefited from this in the subject knowledge. Thanking you with regards,

Dr. S.M. Gaikwad, M.Sc. Zoology, Ph.D.(Entomology) Department of Zoology, Shivaji University, Kolhapur. MAHARASHTRA, INDIA. Cell-+919604260460 416004

of Manarasmire enculture vevelopment Officer - Grace Tistrict Sericulture Office Koffiantermment of Maharashtra Strict Sericulture Office, Kolhapur of F Ward Vapar Petris Sericulture Office, Kolhapur 26400 Vard, Vyaparipeth, Shahupuri, Kolhapur-416001 Phone No. and Fax No. :- 0231-2666682. Email Id :- reshimkolhapur@gmail.com

Ref: DSO/EXTN/2018/112

Date :- 16 03 2018

To, Dr.A.D.Jadhay Assistant Professor. Department of Zoology, Shivaji University, Kolhapur

Respected Sir,

We are very much thankful to you for your Extension Services for Laxmiwadi village, Taluka Hatkangale, Sericulture farmers on Management of Chawki Rearing & lateage Silk Warm Rearing on 22 March 2018, We hope you will extend the same co-operation in future also.

Thanking you

Sericulture Development of Grade -2

SOME CONTRIBUTION TO NANOELECTRONIC LOGIC AND MEMORY

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY KOLHAPUR

FOR THE DEGREE OF

M.Sc.

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE

MR. PRITAM P. CHOUGULE

UNDER THE GUIDANCE OF

DR. M. N. LUWANG

M.Sc., Ph.D.

AND

UNDER THE CO-GUIDANCE OF

DR. T. D. DONGALE

M.Sc., Ph.D.

COMPUTATIONAL ELECTRONICS AND NANOSCIENCE RESEARCH LABORATORY, SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY SHIVAJI UNIVERSITY, KOLHAPUR

(2016)

"IN-SITU EXTRACELLULAR FUNGAL SYNTHESIS OF METAL NANOPARTICLES"

Thesis submitted to school of Nanoscience and Technology,

Shivaji University, Kolhapur

For the degree of

Masters of Science in Nanoscience and Technology

By

Miss. Sangar Madhuri Anil

Under The Guidance Of

Mrs. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory,

Pune - 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nanoscience & Technology,

Shivaji University, Kolhapur.

2016-2017

Study of Organic Perovskite Materials for Solar Cells

A Dissertation of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR

For the Degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Mr. ROHAN PASTE

UNDER THE GUIDANCE OF

Dr. Kartick Tarafder,

Assistant Professor,
Department of Physics,
National Institute of Technology Karnataka
Surathkal, Mangaluru-575025
Karnataka, India.

And

UNDER THE CO-GUIDANCE OF

Dr. P.S. Patil,

Coordinator,

School of Nanoscience and Technology, Shivaji University Kolhapur- 416004, Maharashtra- India.

(2017)





Study of Thermally Synthesized Graphitic Carbon Nitride Based Nanocomposite for Photocatalytic Application

A Project Report Submitted To

SHIVAJI UNIVERSITY, KOLHAPUR

For the Partial Fulfillment

of

Degree of Master of Science

In

Nanoscience and Technology

Under The Faculty Of Science

By

Miss. Vidya Vasant Alman

B. Sc. (Nanoscience and Technology)

Under The Guidance of

Dr. S. P. Gokhale

Principal Scientist

Physical and Materials Chemistry Division

CSIR-National Chemical Laboratory

Pune-411008

SCHOOL OF NANOSCIENCE AND TECHNOLGY, SHIVAJI UNIVERSITY, KOLHAPUR (INDIA) 2017-2018

A Synopsis of the Proposed Research Project Submitted to School Of Nanoscience and biotechnology

Title

SYNTHESIS OF BIOCOMPATIBLE AND BIODEGRADABLE POLYMERSOME FOR TARGETED DRUG DELEVERY

BY

JYOTI TANAJI THANEKAR.

M. Sc.

NANOSCIENCE

(Faculty of Science)

Under the Guidance of

Dr. Baijayantimala Garnaik

(Sr. Pr. Scientist)
PSE DIVISION
CSIR – NCL, PUNE

Co-Guide

Dr. K. K. Sharma

(Assistant Professor)
SHIVAJI UNIVERSITY, KOLHAPUR-416004
(2017)

FUNGAL AND ENZYMATIC SYNTHESIS OF NANOPARTICLES, CHARACTERIZATION AND APPLICATIONS

Thesis of the proposed research project submitted to

SCHOOL OF NANOSCIENCE AND TECHNOLOGY

For the degree of

Master of Science

IN

NANOSCIENCE AND TECHNOLOGY

Under the Faculty of Science

BY

Miss. Priteeka Pradip Suryawanshi

M.Sc. II (Post Graduate Student)

Under The Guidance of

Dr. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory, Pune 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nano science and Technology, Shivaji University, Kolhapur, 2017-2018





Synthesis and Characterization of UV Curable Hybrid Nanocomposites and their Applications in Coatings

A dissertation submitted to

Shivaji University, Kolhapur

For the degree of

MASTER OF SCIENCE

In

Nanoscience and Technology

Under the faculty of **Science and Technology**

By

Miss. Pranita Prakash Magadum

Under the guidance of

Dr. P. P. Wadgonkar

Dr. K. K. Sharma

(Chief Scientist)

(M. Sc., Ph.D.)

Guide

Co-guide

School of Nanoscience & Technology, Shivaji University Vidyanagar, Kolhapur- 416004

&

Laboratory CSIR-National Chemical (NCL), Pune-411008

May 2017-18

PHOTOCATALYSIS FOR WATER SPLITTING

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

MAHESHWARI M. KHOT

UNDER THE GUIDANCE OF

<u>Dr. C.S.GOPINATH</u>

Senior Principal Scientist

SCHOOL OF NANOSCIENCE AND TECHNOLOGY,

SHIVAJI UNIVERSITY, VIDYANAGAR

KOLHAPUR – 416 004

MAHARASHTRA, INDIA.

CERTIFICATE

This is to certify that the dissertation entitled, "Photocatalysis For Water Splitting" which is being submitted herewith for the award of the degree of Master of Science in Nanoscience and Technology of Shivaji University, Kolhapur is the result of the original research work completed by Ms. Maheshwari. M. Khot under my supervision and guidance and to the best of my knowledge and belief, the work embodied in this dissertation has not formed earlier the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Place:	Kol	lhapur
--------	-----	--------

Date:

Signature of the Research Guide

Signature of the Research Co-guide

Dr. C. S. Gopinath

Dr. K. K. Sharma

CSIR-National Chemical Laboratory,

School of Nanoscience and Technology,

Pune.

Shivaji University, Kolhapur.

Signature of Coordinator

Prof. (Dr.) P. S. Patil.

School of Nanoscience and Technology,

Shivaji University, Kolhapur.

DECLARATION

I hereby declare that the dissertation entitled "*Photocatalysis For Water Splitting*" completed and written by me has not previously formed the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Further I declare that I have not violated any of the provisions under the acts of Copyright/Privacy/ Cyber/IPR etc. amended from time to time.

Place: Kolhapur Ms. Maheshwari. M. Khot

Date: Research Student

ACKNOWLEDGEMENTS

It gives me great pleasure to express my deep sense of gratitude towards my guide and mentor, **Prof** (**Dr.**) **C. S. Gopinath**. Working under his guidance is one of the most rewarding experiences in my life only because of his generous attitude, constant encouragement, constructive criticism, erudite guidance and unending interest.

I am very much thankful to CSIR- National Chemical Laboratory, Pune for providing me the necessary facilities during my project.

I am very much thankful to **Prof.** (**Dr.**) **P. S.Patil** Head of Department of School of Nanoscience and Technology, Shivaji University, Kolhapur.

I gratefully acknowledge to my Co-guide Prof (Mr.) K. K. Sharma. Also Prof (Ms.). S. Jagadale for their constant support during my research work.

I must thank to all my school and college teachers, because of their valuable guidance. I could shape up my carrier in right way and able to see my dreams coming true.

I am thankful to all labmates for constant encouragement and moral support, Ms. Pradnya, Ms. Ruchi, Ms. Layana, Ms. Kshirodra, Dr.Naresh, Mr. Manoj, Mr.. Prabhakar, Mr. Nitin, Mr. Himanshu, Mr. Ravi for their help. My special thanks to Ms. Pradnya Bharad for her cooperation and friendly advice received during the progress of this project.

Especially I am very thankful to all my friends who helped me in various level. I am grateful to my all classmate's and friends from SNST for their help and encouragement during my research work.

Finally, Words are insufficient to express my thanks to my thanks to my beloved parents, husband Mr. Shrinath of their support. This wouldn't have been possible without the extreme strength, love, understanding and most precious blessings I received from them.

Maheshwari khot

CONTENTS

Chapter	Title of Chapter	Page
---------	------------------	------

No.		No.
1.	Introduction to photocatalysis for water splitting	
	1.1 Nanotechnology	
	1.1.1 Evolution of Nanotechnology	
	1.1.2 Segments of Nanotechnology	
	1.1.3 Applications of Nanotechnology	
	1.1.4 Advantages of Nanotechnology	
	1.1.5 Disadvantages of Nanotechnology	
	1.1.6 Chemistry of Nanoparticle	
	1.2 Concept of Catalysis and Photocatalysis	
	1.2.1 Catalysis	
	1.2.2 Catalyst Mechanism	
	1.3 Concept of Nano-Catalysis	
	1.4 Introduction Photocatalyst	
	1.4.1 Photocatalysis	
	1.4.2 Transition Metal Oxides as photocatalyst	
	1.4.3 Titanium Dioxide (TiO2)	
	1.4.4 Structure of Titanium Dioxide (TiO2)	
	1.4.5 Semiconductor as photocatalyst	
	1.5 Principle of Photocatalysis	
	1.5.1 Requirement for good photocatalyst	
	1.5.2 Application of Photocatalyst	
	1.6. Photocatalytic Water Splitting	
	1.6.1 Artificial Photosynthesis	
	1.6.2. Artificial Leaf	
	1.7. Potential of making fuels using sunlight	
	1.7.1 Hydrogen Production	
	1.7.2. Hydrogen Production from Water	
	1.8. Reaction Mechanism	
	1.9. Structure related properties of TiO ₂	
	1.9.1 Strategies to develop visible light photocatalysts	
	1.9.2 Bandgap engineering	

1.9.3 Plasmonic Nanostructures for Solar Water Splitting	
1.9.4 Schottky junction and direct electron transfer (DET)	
1.9.5 Near field electromagnetic and scattering mechanism	
1.9.6 Plasmon resonant energy transfer-	
1.10 Role of Co-Catalyst	
1.11 Fabrication of Heterojunction	
1.11.1 CdS/TiO2 Heterojunction-	
1.12 The Role of Sacrificial Agent	
Literature Survey	
Synthesis and Methodology	
3.1 Preparation of light absorbing material	
3.1.1 Doctor Blade Method	
3.1.2 SILAR	
3.2 <u>Synthesis</u>	
3.3 <u>Fabrication of photochemical cell</u>	
3.2.1 Catalyst Preparation	
3.3.1 Preparation of Au-TiO ₂ paste	
3.3.2 Preparation FTO/TiO ₂ /PbS film	
3.3.3 Preparation of FTO/TiO2/PbS/CdS film	
3.3.5 Deposition of Cocatalyst	
3.4 Method for catalytic activity study- photocatalytic water	
splitting	
Result and Discussion	
4.1 Physicochemical Characterization	
4.2 UV-Visible Spectroscopy	
4.3 X-ray Diffraction (XRD)	
4.4 Scanning Electron Microscopy	
4.5 Transmission Electron Microscopy	
4.6 Photocatalytic Hydrogen Generation:	
4.7 Significance of work	
4.8 Mechanism	
4.0 Wechanish	
	1.9.4 Schottky junction and direct electron transfer (DET) 1.9.5 Near field electromagnetic and scattering mechanism 1.9.6 Plasmon resonant energy transfer- 1.10 Role of Co-Catalyst 1.11 Fabrication of Heterojunction 1.11.1 CdS/TiO2 Heterojunction- 1.12 The Role of Sacrificial Agent Literature Survey Synthesis and Methodology 3.1 Preparation of light absorbing material 3.1.1 Doctor Blade Method 3.1.2 SILAR 3.2 Synthesis 3.3 Fabrication of photochemical cell 3.2.1 Catalyst Preparation 3.3.1 Preparation of Au-TiO2 paste 3.3.2 Preparation FTO/TiO2/PbS film 3.3.3 Preparation of FTO/TiO2/PbS/CdS film 3.3.5 Deposition of Cocatalyst 3.4 Method for catalytic activity study- photocatalytic water splitting Result and Discussion 4.1 Physicochemical Characterization 4.2 UV-Visible Spectroscopy 4.3 X-ray Diffraction (XRD) 4.4 Scanning Electron Microscopy 4.5 Transmission Electron Microscopy 4.6 Photocatalytic Hydrogen Generation: 4.7 Significance of work

6. References	
---------------	--

GREEN SYNTHESIS OF METAL NANOPARTICLES AND THEIR APPLICATIONS IN BIOMEDICINE

A Synopsis of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR.

For the degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY.

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY BY

RUTUJA S. GUMATHANNAVAR.

UNDER THE GUIEDENCE OF

Dr. BHUSHAN P. CHAUDHARI Principle Scientist

Biochemical Sciences Division, CSIR – National Chemical Laboratory (NCL), Dr. Homi Bhabha Road, Pashan, Pune 411008.

UNDER THE CO-GUIDENNCE OF

Dr. K.D. PAWAR Assistant Professor, PhD.

School of Nanoscience and Biotechnology, Shivaji University, Kolhapur - 416004.

September (2017)

Development of Binary metal Oxide Nanostructures and their Applications as electrode Materials for Supercapacitors

A Dissertation of the Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Ms. Pratiksha D. Donolikar B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil M.Sc., Ph.D.

Center For Materials For Electronics Technology (C-MET)

Pashan Pune,

(2017-18)

Development of AB₂O₄ type Metal Oxide Nanostructures and their Applications as Electrode Material for Supercapacitors

A Synopsis of the Proposed Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Mr. Sagar D. Jadhav

B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil

M.Sc., Ph.D.

Centre for Materials for Electronics Technology (C-MET),
Pune

(2017-18)

SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

SNEHAL SUNIL JAGADALE

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018



SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

ANUJA ANNASAHEB HAREL

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018





Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com >

Request for permission to visit your Institute....reg.

2 messages

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Sun, Feb 5, 2017 at 6:17 PM

To: priya@ccmb.res.in, coa@ccmb.res.in, avrao@ccmb.res.in, director@ccmb.res.in

I along with Dr.S.R. Yankachi, Assistant Professor visiting Hyderabad during 6-2-2017 to 10-2-2017. We are escorting 50 M.Sc. Part II students for their study tour. During this tour, we would like to visit your esteemed Institute on 8-2-2017 at 10.00 a.m. onwards for appraising our students about the latest research trends in the field of Cellular & Molecular Biology. Kindly giver us permission to visit your Institute and make necessary arrangement for visiting important research Laboratories.

This is for your kind permission and needful.

Thanking you.

Yours faithfully, Dr.M.V. Santha Kumar, Associate Professor, Department of Zoology, Shivaji University, Kolhapur, 9130023099, 9434055590

COA <coa@ccmb.res.in> Reply-To: COA <coa@ccmb.res.in> To: mvdrsanthakumar@gmail.com

Sun, Feb 5, 2017 at 6:08 PM

Message seen by the recepient

Internship Letters



Date:-18-May-2018

CERTIFICATE

This is to certify "Mrs.Aditee Abhijeet Salokhe" udent of college Shivaji university under Department of ashawantrao Chavan School of Rural development has accessfully completed industrial internship in our company om 15 January 18 to 17 May 2018. During this period she orked on project "Seeds, Pesticides & Fertilizers nanagement solution for Bhudargad Shetkari Sahakari angh Ltd Branch: Tambale." Under supervision of our eam. Her performance was very good & we found her very nunctual, hardworking & inquisitive. I wish her best of luck for ner future endeavors.

MIRACLE INFOTECH

ELEMENTS SOFTWARE

ES/IP/18

Date - 4/05/2018

TO WHOMSOEVER IT MAY CONCERN

s is to certify that Miss. Asmita Dinkar Bhosale of Yashwantrao Chavan School of Rural /elopment, Shivaji University, Kolhapur studying in MCA.Part III SEM VI has completed his/her ject as a part of syllabus From Dec 2017 to April 2018. During this period he/she worked on owing technologies,

C#.NET and ASP.NET SQL server 2005/2008 CSS

s/her performance, behavior & attitude during this period was good.

r. Milind S. Sawant

irector

lements Software



Ref No.: 2018-19-AI-0008 Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Ms. Jadhav Komal Bhanudas, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

Her project title is "Record and Billing System for RTO Agent" at our company. Project is still under development.

During her tenure with us, we found she is highly receptive and hardworking. We wish her all the best for her bright future.

For - AVIT Solutions

Mr. Abhijit Jágdale

Director

DONA HOLHANDE

Certificate

This is certify that Miss Kalebere Tejaswini Dattatray.

Student of MCA (Master of Computer Application part 3, Semester-6, Department of YCSRD , Shivaji university Kolhapur, has Successfully Completed Project academic session 2017-2018 as per the

This Project has been carried out under my supervision as part of partial fulfillment of requirement of MCA Degree.

Place: Kolhapus Date: 18/5/2018

Project Guide

Internal Examiner

External Examiner



SHIVAJI UNIVERSITY, KOLHAPUR A PROJECT REPORT ON

"GYM MANAGEMENT SYSTEM"

SUBMITTED FOR THE PARTIAL FULFILLMENT OF THE DEGREE

MCA (III)

MASTER OF COMPUTER APPLICATION (RURAL INFORMATICS)

Part-III, Semester - VI

By

Miss. Meghana Vishwanath Gavade.

Under The Guidance of

Mr. Kanhya Lal Saini

(MAXGEN TECHNOLOGY PVT LTD, MUMBAI)

Department of Computer Science

2017 - 2018

18

Date - 4/05/2018

TO WHOMSOEVER IT MAY CONCERN

certify that Miss. Ujwala Suresh Patil of Yashwantrao Chavan School of Rural ent, Shivaji University, Kolhapur studying in MCA.Part III SEM VI has completed his/her a part of syllabus From Dec 2017 to April 2018. During this period he/she worked on technologies,

Γ and ASP.NET rver 2005/2008

erformance, behavior & attitude during this period was good.

nd S. Sawant

Software



Ref No.: 2018-19-AI-0005

Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Ms. Mohite Tanuja Madhukar, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

Her project title is "Agro Water Billing System" at our company and Project is still under development.

During her tenure with us, we found she is highly receptive and hardworking. We wish her all the best for her bright future.

For - AVIT Solutions

Mr. Abhijit Jagdale

Director

Adarsh Shikshan Prasarak Mandal's

Thri Bapusaheb D. D. Vispute College of Education

B. Ed. & M. Ed. NAAC Acredited with 'B' Grade

oved by WRC, NCTE, Bhopal, Permitted by Govt. of Maharashtra & Affiliated to the University of Mumbal E Code No. 123180 / University of Mumbal College Code - 655

"Plot No. 41, Sector - 15, Near Railway Station, New Panvel, Navi Mumbai, Dist. Raigad, (Mah.) 410206. Tel.: 022-2746 2886, 2746 2888, 2746 8870, ax: 022-2746 2889 E-mail: visputebedprins@gmail.com / visputemedprins@gmail.com Website: www.visputeeducation.info

Mob.: 99217 09207

Chairman: Shri. Dhanraj Vispute (M.Sc. G.D.C. & A)

Date:-16/05/2018

This is to certify that Miss. <u>Prajakta Sandesh Shaha.</u> Student of MCA III (Sem. VI) Yashwantrao Chavan School of Rural Development, Shivaji University, Kolhapur has worked on our software 'Training and Placement Management System for Shri Bapusaheb D.D.Vispute College of Education, Panvel'.

All necessary details were provided from our side for the establishment of this project

We wish her the very best in all her future endeavours

Adersh Shikshan Prasarak Mandal's Shri Bapusaheb D. D. Vispune College of Education, New Parivel.



Ref No.: 2018-19-AI-0007 Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Mr. Pawar Onkar Balasaheb, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

project title is "Order Management and Billing System for Printing Press" at our pany. Project is still under development.

During his tenure with us, we found he is highly receptive and hardworking. We wish him all the best for his bright future.

For - AWIT Solutions

Mr. Abhijit Jagdale

Director

ORONA KOLANDON A

Wo. 8 - 6, "SKY VILLE" Apartment, Wo. 5/ 6/7, R. S. No. 532, 'E' Ward, Word Ram - Mangal Karyalaya, Kolhapur.

www.avits.in



Mobile Application Development
 Software Development
 Website Development
 Brand Promotion

Internship Letter

Snehal Rajendra Chavan Kolhapur. Date

02.05.2016

Dear Sneha,

This is to certify that **Sneha Rajendra Chavan**, pursuing her MCA at Shivaji University has successfully completed summer internship at **Schematrics Softlab** from 23.01.2016 to 25.04.2016.

'We found her sincere, hardworking, technically sound and result oriented.

She worked well as part of a team during her tenure.

We take this opportunity to thank her and wish her all the best for her future.

Name: Amit Mahalank Place:Kolhapur Date:02.05.2016

Schematrics Softlab

Estanh

please sign

46,B ward,Mangeshkar Nagar,Kolhapur Phone: 0231-2645168 Cell: +91 9975322653

Email: info@schematrics.com Web: www.scheamtrics.com

COMPSERV CONSULTANTS PVT. LTD.



CCPL/KOP/2016-2017/80 Date- 25.04.2016

CERTIFICATE

This is to certify that Miss. Shruti Sharanappa Akki is Final year M.C.A. [Rural Informatics]. Student of Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur. She has successfully completed internship as "trainee" in our company, Compserv Consultants Pvt. Ltd., from 01st January 2016 to 25th April 2016.

She worked on project "Patasanstha Accounting – Locker Module" with technology ASP.Net and ORACLE 11G as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish all the best for her future endeavors.

Tanking you,

Compserv Consultants Pvt. Ltd.

segua Sardai

Director (HR & Admin.)



Obicas Infotech



Bedge IT Park First Floor 3/1 MIDC Kharadi, Email-info@obicas.in, www.obicas.in

Date: 25/04/2016

CERTIFICATE

of Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur. Successfully completed internship as "trainee" in our company, Obicas InfoTech from Lanuary 2016 to 25 April 2016.

See worked on Project "Mycior- Customer and Vendor module" with technology ASP.Net and SUL Server2012 as backend.

During the period of her internship we found she is sincere, hardworking and keen learner.

The contents of this report are only for academic purpose and the source code is of confidential there so we are unable to provide the same.

We wish all the best for her future endeavors.

Thanking you,

for Obicas Infotech.

Rahul Choudhary

Managing Director



One Stop Solution for All Corporate Needs...

■ Corporate Training ■ Placement & Staffing ■ Career Guidance & Live Project

CERTIFICATE

This is to certify that Miss.Namrata Arun Bondre is Final year M.C.A.[Rural Informatics]. Student of the Yashwantrao Chavan School of Rural Development, Shivaji Universuty Kolhapur. She has successfully completed internship as trainee" in our company .Logical Solutions, from 01st January 2016 to 27th April 2016.

She worked on project "eTranspower-Sales Module" with technology ASP.Net and SQL Server 2008 as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

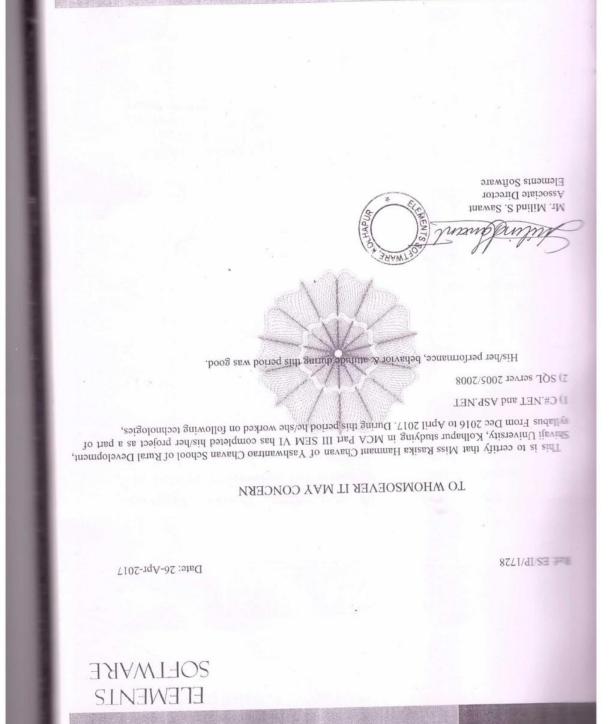
The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish All The Best for her future endeavors.

Thanking You,

For Logical Solutions,

Sarika Neharkar Vavi



Wings Infotech Pvt. Ltd.

Wing, Chavan Park, Bhagwa Chowk, Kasba Bawda, Kolhapur, Irashtra, Country: India, Pin: 416 006 1 231 260 0225 ect@cwingsinfotech.com



Date: 22/04/2016

TO WHOME IT MAY CONCERN

is to certify that Miss Dange Nikita Hanmant a student of MCA (Rural rmatics), Shivaji University, Kolhapur has successfully completed 04 months m 2nd January 2016 to 22th April 2016) long internship programme at this npany. During the period of her internship programme with us she was found actual, hardworking and inquisitive.

wish him every success in life.

mbat Wings InfoTech Pvt. Ltd.

Vishwateet Ghungure

EO.

In as Infotech Pvt. Ltd

www.cwingsinfotech.com



Ref.No:Syca/Intern/04-16

28th April, 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms.Preeti P. Gaikwad** from Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur has successfully completed her project named "**Online Notices**" in our company from 11-1-2016 to 28-4-2016.

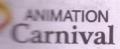
She has completed the project in a given time frame & We wish her a success & good luck in future endeavors.

Thank You

Yours faithfully For, Sycamore

Vikrant Sasode Manager-HR

> A-2, Shushila Apartment, Nal Stop, Karve Road, Pune 411004 .www.sycamoresoft.com Ph:020-25431882



Date:

CERTIFICATE

This is to certify that YOGESH BHARAT GHATULE, M.C.A., student of University, Vidyanagar, Kolhapur, Maharashtra. with Reg No: 1312453130 has successfully completed his project work titled "CAMPUS RECRUITMENT SYSTEM" as part is course curriculum.

He has done this project using JAVA during the period of January 2016 to 2016 under the guidance and supervision of Mr. P Kiran, Sr. Software Engineer, Amation Carnival, Hyderabad.

He has completed the assigned project well within the time frame. He is sometimes, hardworking and his conduct during his project is commendable.

We wish him all the best in his future endeavors.





Date: 30-04-2017

Ref. No.: Sigma-iNet/out/ int /17/60

COMPLETION LETTER

TO WHOMSOEVER IT MAY CONCERN THAT

This is certify that Miss. Radhika Aannaso Desai,, is undergoing his industrial training on live project at SIGMA-iNET Software Technologies Pvt. Ltd, Pune. In Partial fulfillment of the final semester of MCA (Rural Informatics) Course from Yashwantrao Chavan School of Rural Development Shivaji University, Kolhapur.

Details of project are as below-

Project Title : Manufacturing ERP (Web based)

Project Duration : 28th Dec. 2017 to 30th April 2017

Technology : ASP.NET (Visual Studio 2012) / MS SQL Server 2008 R2

Major part of this project he has done till date.

The project is being executed under the guidance of Mr. Rohan K. Otari. The management has viewed her performance continuously during the period of his training and found his performance good. The design and development of the system is as per our company standard.

The certificate has been issued on his own written request for the purpose of university examination.

We wish all the best in his future endeavor.

Thanks & Regards

Mr. Rohan Otari | HR



One Stop Solution for All Corporate Needs...

■ Corporate Training ■ Placement & Staffing ■ Career Guidance & Live Project

CERTIFICATE

Certify that Miss. Poonam Manikrao Patil is Final year M.C.A.[Rural Miss.]. Student of the Yashwantrao Chavan School of Rural Development, Universuty Kolhapur. She has successfully completed internship as in our company .Logical Solutions, from 01st January 2016 to 27th April

Solution of the solution of th

During the period of her internship we found she is sincere, hardworking and a learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish All The Best for her future endeavors.

Thanking You,

For Logical Solutions

Sarika Neharkar

OMPSERV CONSULTANTS PVT. LTD.



PL/KOP/2016-2017/78 ite- 25.04.2016

CERTIFICATE

his is to certify that Miss. Priyanka Shivaji Mutnale is Final year M.C.A. [Rural nformatics]. Student of Yashwantrao Chavan School of Rural Development, Shivaji Iniversity Kolhapur. She has successfully completed internship as "trainee" in our ompany, Compserv Consultants Pvt. Ltd., from 01st January 2016 to 25th April 2016.

the worked on project "Pigmy Collection" with technology ANDROID and SQLite as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish all the best for her future endeavors.

Thanking you,

For Consultants Pvt. Ltd.





inetech Software Solutions LLP

We Serve INnovativE Technologies

2016-2017/11

CERTIFICATE

ertify that Miss. Shamal Akaram Kamble is Final year M.C.A [Rural Informatics]. Student of to Chavan School Of rural Development. Shivaji University Kolhapur. She has successfully internship as trainee in our company Sinetech Software Solutions LLP from 20th Dec 2016 to 20th

ed on project "BookMyFancyDress.com-Order Management System" with technology and MSSQL Server 2008 as backend.

period of her internship we found she is sincere, hardworking and a keen learner.

nts of this report are only for academic purpose and the source code is of confidential nature so to provide the same.

I the best for her future endeavors.

Zou.

:h Software Solutions LLP.

ulekha Atak

rector)

-1A, World of Mother, Near Ganesh Vision, Cheinchwad, Akurdi, Pimpri-Chinchwad, Maharashtra ntact: 020-46700359,Email:info@sinetechsoftwaresolutions.com,url:www.sinetechsoftwaresolutions.com

Page 1

Internship Letters



Date:-18-May-2018

CERTIFICATE

This is to certify "Mrs.Aditee Abhijeet Salokhe" udent of college Shivaji university under Department of ashawantrao Chavan School of Rural development has accessfully completed industrial internship in our company om 15 January 18 to 17 May 2018. During this period she orked on project "Seeds, Pesticides & Fertilizers nanagement solution for Bhudargad Shetkari Sahakari angh Ltd Branch: Tambale." Under supervision of our eam. Her performance was very good & we found her very nunctual, hardworking & inquisitive. I wish her best of luck for ner future endeavors.

MIRACLE INFOTECH

ELEMENTS SOFTWARE

ES/IP/18

Date - 4/05/2018

TO WHOMSOEVER IT MAY CONCERN

s is to certify that Miss. Asmita Dinkar Bhosale of Yashwantrao Chavan School of Rural /elopment, Shivaji University, Kolhapur studying in MCA.Part III SEM VI has completed his/her ject as a part of syllabus From Dec 2017 to April 2018. During this period he/she worked on owing technologies,

C#.NET and ASP.NET SQL server 2005/2008 CSS

s/her performance, behavior & attitude during this period was good.

r. Milind S. Sawant

irector

lements Software



Ref No.: 2018-19-AI-0008 Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Ms. Jadhav Komal Bhanudas, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

Her project title is "Record and Billing System for RTO Agent" at our company. Project is still under development.

During her tenure with us, we found she is highly receptive and hardworking. We wish her all the best for her bright future.

For - AVIT Solutions

Mr. Abhijit Jágdale

Director

DONA HOLHANDE

Certificate

This is certify that Miss Kalebere Tejaswini Dattatray.

Student of MCA (Master of Computer Application part 3, Semester-6, Department of YCSRD , Shivaji university Kolhapur, has Successfully Completed Project academic session 2017-2018 as per the

This Project has been carried out under my supervision as part of partial fulfillment of requirement of MCA Degree.

Place: Kolhapus Date: 18/5/2018

Project Guide

Internal Examiner

External Examiner



SHIVAJI UNIVERSITY, KOLHAPUR A PROJECT REPORT ON

"GYM MANAGEMENT SYSTEM"

SUBMITTED FOR THE PARTIAL FULFILLMENT OF THE DEGREE

MCA (III)

MASTER OF COMPUTER APPLICATION (RURAL INFORMATICS)

Part-III, Semester - VI

By

Miss. Meghana Vishwanath Gavade.

Under The Guidance of

Mr. Kanhya Lal Saini

(MAXGEN TECHNOLOGY PVT LTD, MUMBAI)

Department of Computer Science

2017 - 2018

18

Date - 4/05/2018

TO WHOMSOEVER IT MAY CONCERN

certify that Miss. Ujwala Suresh Patil of Yashwantrao Chavan School of Rural ent, Shivaji University, Kolhapur studying in MCA.Part III SEM VI has completed his/her a part of syllabus From Dec 2017 to April 2018. During this period he/she worked on technologies,

Γ and ASP.NET rver 2005/2008

erformance, behavior & attitude during this period was good.

nd S. Sawant

Software



Ref No.: 2018-19-AI-0005

Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Ms. Mohite Tanuja Madhukar, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

Her project title is "Agro Water Billing System" at our company and Project is still under development.

During her tenure with us, we found she is highly receptive and hardworking. We wish her all the best for her bright future.

For - AVIT Solutions

Mr. Abhijit Jagdale

Director

Adarsh Shikshan Prasarak Mandal's

Thri Bapusaheb D. D. Vispute College of Education

B. Ed. & M. Ed. NAAC Acredited with 'B' Grade

oved by WRC, NCTE, Bhopal, Permitted by Govt. of Maharashtra & Affiliated to the University of Mumbal E Code No. 123180 / University of Mumbal College Code - 655

"Plot No. 41, Sector - 15, Near Railway Station, New Panvel, Navi Mumbai, Dist. Raigad, (Mah.) 410206. Tel.: 022-2746 2886, 2746 2888, 2746 8870, ax: 022-2746 2889 E-mail: visputebedprins@gmail.com / visputemedprins@gmail.com Website: www.visputeeducation.info

Mob.: 99217 09207

Chairman: Shri. Dhanraj Vispute (M.Sc. G.D.C. & A)

Date:-16/05/2018

This is to certify that Miss. <u>Prajakta Sandesh Shaha.</u> Student of MCA III (Sem. VI) Yashwantrao Chavan School of Rural Development, Shivaji University, Kolhapur has worked on our software 'Training and Placement Management System for Shri Bapusaheb D.D.Vispute College of Education, Panvel'.

All necessary details were provided from our side for the establishment of this project

We wish her the very best in all her future endeavours

Adersh Shikshan Prasarak Mandal's Shri Bapusaheb D. D. Vispune College of Education, New Parivel.



Ref No.: 2018-19-AI-0007 Date: 26th April, 2018.

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is certified that Mr. Pawar Onkar Balasaheb, a final year student of Master of Computer Application, from Shivaji University, Kolhapur has undergone Industrial Training in our organization from 20th December 2017 to 20th April 2018.

project title is "Order Management and Billing System for Printing Press" at our pany. Project is still under development.

During his tenure with us, we found he is highly receptive and hardworking. We wish him all the best for his bright future.

For - AWIT Solutions

Mr. Abhijit Jagdale

Director

ORONA KOLANDON A

Wo. 8 - 6, "SKY VILLE" Apartment, Wo. 5/ 6/7, R. S. No. 532, 'E' Ward, Word, Mangal Karyalaya, Kolhapur.

www.avits.in



Mobile Application Development
 Software Development
 Website Development
 Brand Promotion

Internship Letter

Snehal Rajendra Chavan Kolhapur. Date

02.05.2016

Dear Sneha,

This is to certify that **Sneha Rajendra Chavan**, pursuing her MCA at Shivaji University has successfully completed summer internship at **Schematrics Softlab** from 23.01.2016 to 25.04.2016.

'We found her sincere, hardworking, technically sound and result oriented.

She worked well as part of a team during her tenure.

We take this opportunity to thank her and wish her all the best for her future.

Name: Amit Mahalank Place:Kolhapur Date:02.05.2016

Schematrics Softlab

Estanh

please sign

46,B ward,Mangeshkar Nagar,Kolhapur Phone: 0231-2645168 Cell: +91 9975322653

Email: info@schematrics.com Web: www.scheamtrics.com

COMPSERV CONSULTANTS PVT. LTD.



CCPL/KOP/2016-2017/80 Date- 25.04.2016

CERTIFICATE

This is to certify that Miss. Shruti Sharanappa Akki is Final year M.C.A. [Rural Informatics]. Student of Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur. She has successfully completed internship as "trainee" in our company, Compserv Consultants Pvt. Ltd., from 01st January 2016 to 25th April 2016.

She worked on project "Patasanstha Accounting – Locker Module" with technology ASP.Net and ORACLE 11G as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish all the best for her future endeavors.

Tanking you,

Compserv Consultants Pvt. Ltd.

segua Sardai

Director (HR & Admin.)



Obicas Infotech



Bedge IT Park First Floor 3/1 MIDC Kharadi, Email-info@obicas.in, www.obicas.in

Date: 25/04/2016

CERTIFICATE

of Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur. Successfully completed internship as "trainee" in our company, Obicas InfoTech from Lanuary 2016 to 25 April 2016.

See worked on Project "Mycior- Customer and Vendor module" with technology ASP.Net and SUL Server2012 as backend.

During the period of her internship we found she is sincere, hardworking and keen learner.

The contents of this report are only for academic purpose and the source code is of confidential there so we are unable to provide the same.

We wish all the best for her future endeavors.

Thanking you,

for Obicas Infotech.

Rahul Choudhary

Managing Director



One Stop Solution for All Corporate Needs...

■ Corporate Training ■ Placement & Staffing ■ Career Guidance & Live Project

CERTIFICATE

This is to certify that Miss.Namrata Arun Bondre is Final year M.C.A.[Rural Informatics]. Student of the Yashwantrao Chavan School of Rural Development, Shivaji Universuty Kolhapur. She has successfully completed internship as trainee" in our company .Logical Solutions, from 01st January 2016 to 27th April 2016.

She worked on project "eTranspower-Sales Module" with technology ASP.Net and SQL Server 2008 as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

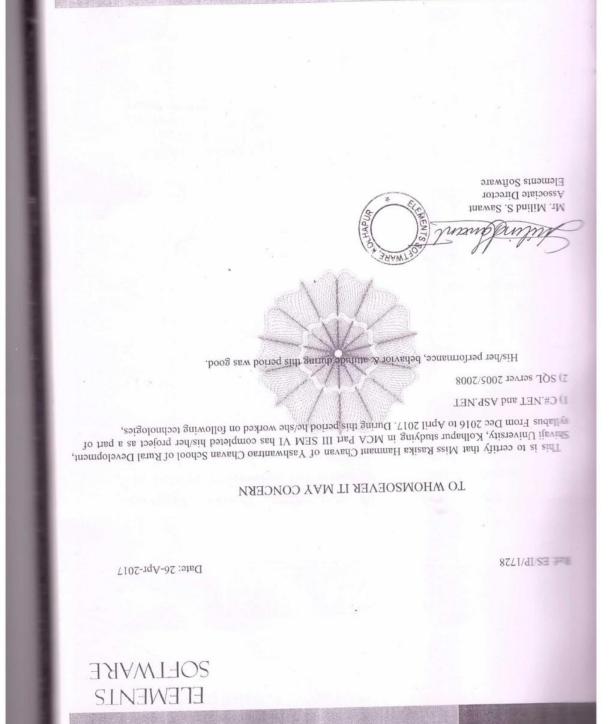
The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish All The Best for her future endeavors.

Thanking You,

For Logical Solutions,

Sarika Neharkar Vavi



Wings Infotech Pvt. Ltd.

Wing, Chavan Park, Bhagwa Chowk, Kasba Bawda, Kolhapur, Irashtra, Country: India, Pin: 416 006 1 231 260 0225 ect@cwingsinfotech.com



Date: 22/04/2016

TO WHOME IT MAY CONCERN

is to certify that Miss Dange Nikita Hanmant a student of MCA (Rural rmatics), Shivaji University, Kolhapur has successfully completed 04 months m 2nd January 2016 to 22th April 2016) long internship programme at this npany. During the period of her internship programme with us she was found actual, hardworking and inquisitive.

wish him every success in life.

mbat Wings InfoTech Pvt. Ltd.

Vishwateet Ghungure

EO.

In as Infotech Pvt. Ltd

www.cwingsinfotech.com



Ref.No:Syca/Intern/04-16

28th April, 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms.Preeti P. Gaikwad** from Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur has successfully completed her project named "**Online Notices**" in our company from 11-1-2016 to 28-4-2016.

She has completed the project in a given time frame & We wish her a success & good luck in future endeavors.

Thank You

Yours faithfully For, Sycamore

Vikrant Sasode Manager-HR

> A-2, Shushila Apartment, Nal Stop, Karve Road, Pune 411004 .www.sycamoresoft.com Ph:020-25431882



Date:

CERTIFICATE

This is to certify that YOGESH BHARAT GHATULE, M.C.A., student of University, Vidyanagar, Kolhapur, Maharashtra. with Reg No: 1312453130 has successfully completed his project work titled "CAMPUS RECRUITMENT SYSTEM" as part is course curriculum.

He has done this project using JAVA during the period of January 2016 to 2016 under the guidance and supervision of Mr. P Kiran, Sr. Software Engineer, Amation Carnival, Hyderabad.

He has completed the assigned project well within the time frame. He is sometimes, hardworking and his conduct during his project is commendable.

We wish him all the best in his future endeavors.





Date: 30-04-2017

Ref. No.: Sigma-iNet/out/ int /17/60

COMPLETION LETTER

TO WHOMSOEVER IT MAY CONCERN THAT

This is certify that Miss. Radhika Aannaso Desai,, is undergoing his industrial training on live project at SIGMA-iNET Software Technologies Pvt. Ltd, Pune. In Partial fulfillment of the final semester of MCA (Rural Informatics) Course from Yashwantrao Chavan School of Rural Development Shivaji University, Kolhapur.

Details of project are as below-

Project Title : Manufacturing ERP (Web based)

Project Duration : 28th Dec. 2017 to 30th April 2017

Technology : ASP.NET (Visual Studio 2012) / MS SQL Server 2008 R2

Major part of this project he has done till date.

The project is being executed under the guidance of Mr. Rohan K. Otari. The management has viewed her performance continuously during the period of his training and found his performance good. The design and development of the system is as per our company standard.

The certificate has been issued on his own written request for the purpose of university examination.

We wish all the best in his future endeavor.

Thanks & Regards

Mr. Rohan Otari | HR



One Stop Solution for All Corporate Needs...

■ Corporate Training ■ Placement & Staffing ■ Career Guidance & Live Project

CERTIFICATE

Certify that Miss. Poonam Manikrao Patil is Final year M.C.A.[Rural Miss.]. Student of the Yashwantrao Chavan School of Rural Development, Universuty Kolhapur. She has successfully completed internship as in our company .Logical Solutions, from 01st January 2016 to 27th April

Solution of the solution of th

During the period of her internship we found she is sincere, hardworking and a learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish All The Best for her future endeavors.

Thanking You,

For Logical Solutions

Sarika Neharkar

OMPSERV CONSULTANTS PVT. LTD.



PL/KOP/2016-2017/78 ite- 25.04.2016

CERTIFICATE

his is to certify that Miss. Priyanka Shivaji Mutnale is Final year M.C.A. [Rural nformatics]. Student of Yashwantrao Chavan School of Rural Development, Shivaji Iniversity Kolhapur. She has successfully completed internship as "trainee" in our ompany, Compserv Consultants Pvt. Ltd., from 01st January 2016 to 25th April 2016.

the worked on project "Pigmy Collection" with technology ANDROID and SQLite as backend.

During the period of her internship we found she is sincere, hardworking and a keen learner.

The contents of this report are only for academic purpose and the source code is of confidential nature so we are unable to provide the same.

We wish all the best for her future endeavors.

Thanking you,

For Consultants Pvt. Ltd.





inetech Software Solutions LLP

We Serve INnovativE Technologies

2016-2017/11 :016

CERTIFICATE

ertify that Miss. Shamal Akaram Kamble is Final year M.C.A [Rural Informatics]. Student of to Chavan School Of rural Development. Shivaji University Kolhapur. She has successfully internship as trainee in our company Sinetech Software Solutions LLP from 20th Dec 2016 to 20th

ed on project "BookMyFancyDress.com-Order Management System" with technology ind MSSQL Server 2008 as backend.

period of her internship we found she is sincere, hardworking and a keen learner.

its of this report are only for academic purpose and the source code is of confidential nature so to provide the same.

I the best for her future endeavors.

:h Software Solutions LLP.

ulekha Atak

rector)

·1A, World of Mother, Near Ganesh Vision, Cheinchwad, Akurdi, Pimpri-Chinchwad, Maharashtra ntact: 020-46700359,Email:info@sinetechsoftwaresolutions.com,url:www.sinetechsoftwaresolutions.com

Page 1

No. BT/PR18965/BCE/8/1401/2016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Block 2, 6-8th Floors CGO Complex, Lodhi Road, New Delhi- 110 003 Dated: 15.06.2017

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules ,1978 , for the implementation of the project entitled: "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater" for a period of 3 Year 0 Month at a total cost of Rs. 13487800 (Rupees One Crores Thirty Four Lakhs Eighty Seven Thousand Eight Hundred Only) on the terms and conditions detailed here under:-

2 The Project:

2.1 Title: "Integrated eco-electrogenic system for efficient and sustainable treatment of textile wastewater"

2.2 Details of the Investigations:

Project Cordinator

Dr. S Venkata Mohan

Principal Scientist, Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, BEEC Habsiguda,Uppal Road, Hyderabad -500007, Telangana

Principal Investigators:

Dr. S Venkata Mohan

Principal Scientist,
Bioengineering and Environmental Sciences,
CSIR-Indian Institute of Chemical Technology, BEEC
Habsiguda,Uppal Road, Hyderabad -500007, Telangana

Dr. Chirayu Desai

Assistant Professor,
Department of Biological Sciences,
P. D. Patel Institute of Applied Sciences,
Charotar University of Science and Technology
(CHARUSAT) Campus, Changa
Petlad, Anand – 388421, Gujarat

Sp. inf

Prof. Jyoti P Jadhav

Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur – 416004, Maharashtra

CO-PI:

Dr. A Kiran Kumar

Technical Officer, Indian Institute of Chemical Technology, BEEC Habsiguda, Uppad Road, Hyderabad - 500007, Andhra Pradesh

Dr. Seema Amin

Assistant Professor,
Department of Microbiology,
Department of Microbiology, Charotar
University of Science and Technology, Changa
Petlad, Anand – 388421, Gujarat

Prof. Govindwar SP

Principal, Rajarambapu College of Sugar Technology, New, Bahe Naka, Islampur - 415409, Maharashtra

2.3 Objectives:

Institute wise Objectives:

Charotar University of Science and Technology

- 1. Characterization of industrial effluents
- Enrichment and development of bacterial consortia from soil rhizosphere zones of potential dye remediating plants
- 3. Construction, functional characterization and performance enhancement of prepilot/pilot scale phytoreactors augmented with enriched bacterial consortia with ability for dye degradation
- 4. Integration plant-bacterial phytoreactor treating textiles effluents with microbial fuel cells and identification of electrogenic bacterial communities
- 5. Characterization of microbial community dynamics along with the analysis of their functional potential in the plant rhizosphere zones during pre and post-treatment phase, to understand the role of augmented consortia and native microbial species involved in remediation of textile/dye wastewaters

INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY

 To design optimized P-MFC based on appropriate evaluation of electrode materials, electrode assembly design, placement of cathode, distance between electrodes, process parameters optimization, etc

Sp. nf

Page No. [2 / 9]

- 2. To study the functional role of enriched/augmented microbial consortia and plant species variation on the electrogenic activity and treatment efficiency
- To integrate P-MFC with constructed wetland and evaluating performance at scale up operation

Shivaji University

- 1. Construction of lagoons of aquatic plants (60,000L) through nallah till the entry of waste water to river for the biological treatment of textile effluent. The identified free floating aquatics, swamp marshy and submerged rooted plants (viz. Ipomea aquatica, Typha angustifolia, Salvinia molesta, Vetiver zizanioides). Study of toxicity parameters of treated effluent (BOD, COD, TDS, Microbial count, Diversity, Cytogenotoxicity), analysis of dye residues in plant tissues, capacity of wetland, and longevity of plants.
- Study of plant-plant consortium and plant-bacterial synergism for efficient decolorization of textile dyes (Status of biotransformation enzymes, analysis of metabolite and Toxicity analysis).

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **13487800**/-(Rupees One Crores Thirty Four Lakhs Eighty Seven Thousand Eight Hundred Only) as per details given below:

Institute	Year I	Year II	Year III	Total Cost(Rs.)
Charotar University of Science and Technology	3113000	1060000	1103200	5276200
2. INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY	2023800	936800	936800	3897400
3. Shivaji University	2003400	1155400	1155400	4314200
Total (Rs.)	7140200	3152200	3195400	13487800

Sp.nf

Institute wise details are:

Year I	Year II	Year III	Total(Rs.
sity of Science and	d Technology	uses to encorpared	MINISTER STATE
2053000.00	Seriametre bra	charg appleading 15 to	2053000.0
360000.00	360000.00	403200.00	1123200.0
50000.00	50000.00	50000.00	150000.0
50000.00	50000.00	50000.00	150000.0
300000.00	300000.00	300000.00	900000.00
50000.00	50000.00	50000.00	150000.00
250000.00	250000.00	250000.00	750000.00
3113000.00	1060000.00	1103200.00	5276200.00
ту			No. 20 Decided in the last
798000.00		21//(0	798000.00
605400.00	605400.00	605400.00	1816200.00
100000.00	50000.00	50000.00	200000.00
50000.00	50000.00	50000.00	150000.00
300000.00	300000.00	300000.00	900000.00
150000.00	150000.00	150000.00	450000.00
2003400.00	1155400.00	1155400.00	4314200.00
JTE OF CHEMICAL	TECHNOLOGY		- Page
1037000.00			1037000.00
436800.00	436800.00	436800.00	1310400.00
100000.00	50000.00	50000.00	200000.00
50000.00	50000.00	50000.00	150000.00
300000.00	300000.00	300000.00	900000.00
100000.00	100000.00	100000.00	300000.00
2023800.00	936800.00	936800.00	3897400.00
	2053000.00 360000.00 50000.00 50000.00 50000.00 250000.00 3113000.00 605400.00 100000.00 2003400.00 436800.00 100000.00 50000.00 30000.00 436800.00 100000.00 300000.00 100000.00	Sity of Science and Technology	Solution Science Solution Solution

2.6 Equipment:The details of the equipment sanctioned for the implementation of the project at Annexure-I

Generated through eProMIS

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at Annexure-II

3. Head of Account:

The Non-Recurring expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2017-2018
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development, Human Resource Development, Research Resources and Facilities
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2017-2018
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development, Human Resource Development, Research Resources and Facilities
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants-in-aid General

4. Terms & Conditions:

Considering the time bound nature of the project, the project will be monitored by the Task Force / Committee constituted by DBT. In addition, the PI will submit half yearly progress report as per format in Annexure-V.

- 4.1 The other terms and conditions governing this sanction are attached at Annexure- III.
- 4.2A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA by the grantee institutions and its acceptance by DBT. In case of NGO or Private Institution, MOA signed is mandatory first release. A format of the MoA is enclosed in Annexure-IV

Sp. mf

- 4.3The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The Interest so earned will be treated as created to the institute/Agency and shall be adjusted towards further installment of the grant and or at the time of Final Settlement of Accounts.
 - **5.**No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
- **6.**The Director, Charotar University of Science and Technology, Anand, Gujarat and The Director, INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY, Hyderabad, Andhra Pradesh and The Finance and Accounts Officer, Shivaji University, Kolhapur, Maharashtra would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
- **7.**PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-09/2012 dated on 21 Oct 2014. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
- **8.**As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so.
- 9. This issues under the power delegated to this Department and with the concurrence of IFD vide their SAN No.102/IFD/SAN/1092/2017-2018 dated June, 12 2017.

10. This sanction order has been noted at serial no. 37 in the Register of Grants.

To, The Pay & Accounts Officer, Department of Biotechnology, New Delhi – 110 003.

Copy to:

- The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Dr S Venkata Mohan(Project Co-ordinator), Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, Habsiguda, Uppal Road, Hyderabad -500007, Andhra Pradesh
- 3 The Director, Charotar University of Science and Technology, Taluka: Petlad, Anand -388421, Gujarat
- 4 The Director, Indian Institute Of Chemical Technology, Uppal Road, Hyderabad 500007, Telangana
- 5 The Finance and Accounts Officer, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 6 Dr. A Kiran Kumar, Technical Officer, Indian Institute of Chemical Technology Hyderabad, BEEC Habsiguda, Uppad Road,, Hyderabad 500007, Andhra Pradesh
- 7 Dr. Chirayu Desai, Assistant Professor, Department of Biological Sciences, P. D. Patel Institute of Applied Sciences, Charotar University of Science and Technology(CHARUSAT) Campus, Changa Anand 388421, Gujarat
- 8 Dr. S Venkata Mohan, Principal Scientist, Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, BEEC Habsiguda, Uppal Road, Hyderabad -500007, Telangana
- 9 Dr. Seema Amin, Assistant Professor, Department of Microbiology, Charotar University of Science and Technology (CHARUSAT), Changa Petlad, Anand 388421, Gujarat
- 10 Prof. Govindwar SP, Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 11 Prof. Jyoti P Jadhav, Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 12 Cash Section, DBT (2 copies).
- 13 Sanction Folder.
- 14 File Copy.

Annexure -I

Details of the Equipment sanctioned for the implemention of the project titled "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater":

Char	otar University of Science and Technology		tromo v u is as
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	COD, BOD, DO meter and Small Instruments	-	554000.00
2.	Real time-PCR System	1	1499000.00
		Total	2053000.00
Shiva	iji University		STATE OF THE STATE OF
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Land development and construction of lagoons etc. (pipes, water pumps, land cultivation equipments etc.)	S Y of IX	798000.00
		Total	798000.00
INDI	AN INSTITUTE OF CHEMICAL TECHNOLOGY	of a maker	ST. Sentil Settle IV. 97
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Soil Electro conductivity probes	1	400000.00
2.	Additional Potentiostat channels for pre-existing Biologic Potentiostat	1	637000.00
		Total	1037000.00

Details of the manpower sanctioned for the implemention of the project titled "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater":

	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Charotar Unive	ersity of Sc	ience and Techr	nology	6.1	step and
Junior Research Fellow @ Rs. 25,000/- pm + 20% HRA For 1st & 2nd Year Senior Research Fellow @ Rs. 28,000/- pm + 20% HRA For 3rd Year		360000.00	360000.00	403200.00	1123200.00
Total(Rs.)		360000.00	360000.00	403200.00	1123200.00
2. INDIAN INSTI	TUTE OF C	HEMICAL TECHN	IOLOGY		
Senior Research Fellow @28000 + 30 %HRA	TUTE OF C	436800.00	436800.00	436800.00	
Senior Research Fellow @28000 +	TUTE OF C	Left terrow ker		436800.00 436800.00	1310400.00
Senior Research Fellow @28000 + 30 %HRA	1	436800.00	436800.00		1310400.00
Senior Research Fellow @28000 + 30 %HRA Total(Rs.) 3. Shivaji Universe Senior Research Fellow @ Rs.2800/- per month + 20%	1	436800.00	436800.00		1310400.00
Senior Research Fellow @28000 + 30 %HRA Total(Rs.) 3. Shivaji Univers Senior Research Fellow @ Rs.2800/-	sity	436800.00 436800.00	436800.00 436800.00	436800.00	1310400.00

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No.SR/S9/Z-09/2012 dated 21.10.2014.



DATE:-20/07/2018

CERTIFICATE

To Whomsoever Concerned

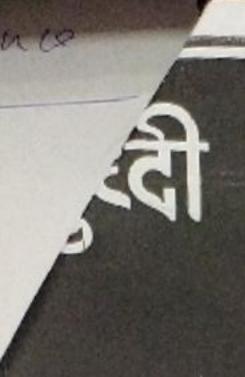
This is to certify that Shri Suresh Hanmant Pukale (M.Sc. Part I, Industrial Chemistry) has completed his Industrial Project / Training from the period 05-06-18 to 30-06-18 in our Factory.

He was found to be hard working and sincere in hes course.

For Indu Dyes

Partner

(Shivanand Patil)



SHUDDHI INDUSTRIES LLP

LLP IN :- AAD-1541

Off.:5/408, Totala Building. Gala No.3, Datye Mala. Ichalkaranji - 416 115 Dist , Kelhapur Factory: Metro Hi-Tech Co.po Textile Park Ltd., T-7 & T-7 (Part), Plot No. 3 Kagal-Halkanagale Five Star MIDC Kasaba Sangaon, Dist. Kolhabur

© 0230- 2436878 Mob.: 8888366999/9545618000

Shuddhi.industries@gmail.com

Ref: SHUDDHI/2018/05

221H June 2018

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

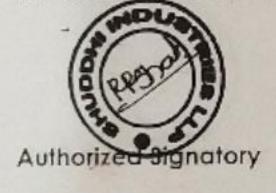
This is to certify that Ms Kirti Ramchandra More, the 2nd year student of M.sc. Industrial Chemistry, Shivaji University has undergone in-plant training form 28th May 2018 to 11th June 2018 in our organization.

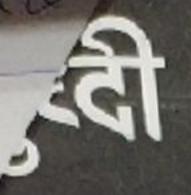
During the above period she was found to be sincere & hard working.

We wish her every success in her future assignments.



For SHUDDHI INDUSTRIES LLP





SHUDDHI INDUSTRIES LLP

LLP I.N. -- AAD-1541

Off.:5/408, Totala Building. Gala No.3, Daiye Mala, Ichalkaranji - 416 115 Dist , Kelhapur Factory: Metro Hi-Tech Co.op Textile Park Ltd., T-7 & T-7 (Part), Plot No. 3, Kagal-Hatkanagaie Five Star MIDC Kasaba Sangaon, Ost , Kalhasur

© 0230- 2436878 Mob.: 8888366999/9545618000

shuddhi.industrie: ⊕gmail.cem

Ref: SHUDDHI/2018/04

221H June 2018

CERTIFICATE

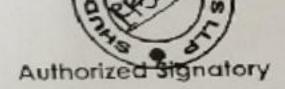
TO WHOM SO EVER IT MAY CONCERN

This is to certify that Ms Reshma Ganapati Nagarpole, the 2nd year student of M.sc. Industrial Chemistry, Shivaji University has undergone in-plant training form 28th May 2018 to 11th June 2018 in our organization.

During the above period she was found to be sincere & hard working.

We wish her every success in her future assignments.

FOR SHUDDHLINDUSTRIES LLP





TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Swati Kalkundrikar has undergone training in Chemical Research & Development (Synthesis) Department of our Organisation based at Mumbai from 1st June, 2018 to 26th June, 2018.

Her training was found to be satisfactory.

For Ipca Laboratories Limited

AL

Dr Ashok Kumar President - R&D (Chemicals)

Place: Mumbai

Date : 26th June, 2018

E: pca@ipca.com | CIN:L24239MH1949PLC007637



100

राष्ट्रीय केमिकल्स एण्ड फर्टिलाइजर्स लिमिटेड

(भारत सरकार का उपक्रम)

वर्क्स : प्रशासनिक भवन, चेंब्र, मुंबई - 400 074.

RASHTRIYA CHEMICALS & FERTILIZERS LIMITED

(Government of India Undertaking)

WORKS: ADMINISTRATIVE BUILDING, CHEMBUR, MUMBAI-400 074.

PHONES: 022-25522000

HUMAN RESOURCE DEVELOPMENT CENTRE

CERTIFICATE

Name

Mr. Ghanwat Ashish Arjun.

Institution

Shivaji University, Kolhapur.

Discipline

Chemical Engineering.

Period of Training

: 18/05/2018 to 15/06/2018

Leave taken during training: Nil

Off Days & Holidays : 04 Days

Nature of Training: Study of water, gas & complex fertilizers

sample analysis with analytical instrumentation in

Central Chemical Laboratory.

Report of Training

Aspects	Very Good	Good	Fair	Average	Below Average
1 Conduct	N	-	-		-
2. Punctuality	4	100	-		an.
3. Knowledge		ý	-	-	1,000
4 Interview Rating	-	1	-		
5. Diary Rating	-	4			-

Special Remarks: He is punctual & hardworking

Date: 15-06-2018

Senior वरिष्ठ प्रबंधक (मा.स.वि.) Sr. Manager (HRD)

पंजीकत कार्यालय : 'प्रियदशेष' ईस्टर्न एक्स्प्रेस हाइवे, मुंबई - 400 022.

REGD. OFFICE: 'PRIYADARSHINI', EASTERN EXPRESS HIGHWAY, MUMBAI-400 022.

PHONE: 022-25522000

SYMBIOSIS

Manufacturers of liquid orals & dry syrup

SYMBIOSIS CO-OP PHARMACEUTICALS LTD, SANGLI.

Ref. No:-SYM/021/18

Date:-10/06/2018

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Miss. KAMBLE PRAJAKTA SURESH from SHIVAJI UNIVERSITY, KOLHAPUR. DEPARTMENT OF INDUSTRIAL CHEMISTRY had undergone the Industrial Project & Training from 22nd May 2018 to 10th Jun. 2018 in our premise

She has successfully completed the Internship in Our Manufacturing, production area & Laboratory analytical work carried out in our Pharmaceutical Company.

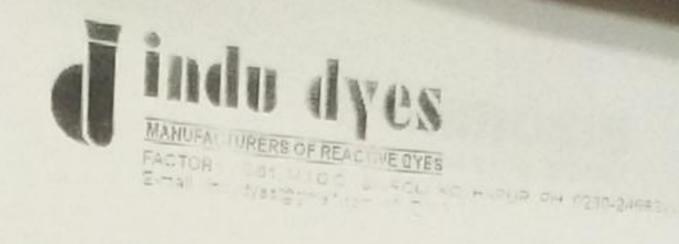
During her training she has shown a keep learning orientation towards various aspects of our department.

She found hardworking & sincere during the tenure of training.

We wish her all the very success in her studies & successful carrier in future

Unit Head

Symbiosis Co-Op. Pharmaceuticals Ltd. Sangli



DATE-10/0/2018

CERTIFICATE

To Whomsoever Concerned

This is to certify that Mess. Dipwala Remchandra Mone (M.Sc. Part I, Industrial Chemistry) has completed her Industrial Project / Training from the period 05-06-18 to 30-06-18 in our Factory.

She was found to be hard working and success in her course

For India Dyes

(FUTIMET

(Shivanand Patil)

SYMBIOSIS CO-OP PHARMAC SUTICALS LTD. SANOLL

Manufacturers of

Ref. Vo:-SVV 1812

Do es-10/06 2018

TO WHOM SO EVER IT MAY CONCERN

This is to cert. the Miss. KAVARE SONAL SANJAY from SHIVAJI
UNIVERSITY, KOLHAPUR. DEPARTMENT OF INDUSTRIAL
CHEMISTRY had undergone the Industrial Project & Training from 22nd May
2018 to 17 Jan 2018 in our premises

She has successfully completed the Internship in Our Manufac using production area & Laboratory analytical work carried out in our Pharmaco steal Company.

During her training are has shown a keep learning orientation towards various aspects of our department.

She found hardworking & sincere during the tenure of training.

We wish her an the very success in her studies & successful carrier in future

Umf Head

Symblosis Co-Op. Pharmaceuticals Ltd. Sangli



Date: 25/05/2019

TO WHOM IT MAY CONCERN

This is to certify that Mr. Jaguap Praful, Amrub, a student from Shivaji University, Kolhabur (Dept. of Industrial Cremistry) is awarded this certificate in recognition of his satisfactority completion of one monte of industrial Training Program on Industrial Chemistry" between the period 21" May 2018 (ii) 21" June 2018.

We wish him every suggests to the

for Om Mactys Heath Technologies | Telled, France

Authorized Signature

Cover half of Health Technologies Limited

Conscient Object Published Indiana State of the Constitution of th Supplemental market as the first of the party of the first of the firs TELL MARK THE SERVEY BY THE THE PARTY OF A MALL OF THE PARTY OF THE PA

CH - SERVER PER CHARLE

Scrence Co.in

pate: 06/07/2018

IN - PLANT TRAINING CERTIFICATE

This is to certify that Jyoti Dilip Kadam who is enrolled in the course M.Sc. (Industrial Chemistry) has completed his/her Industrial Training successfully at;

Emcure Pharmaceutical Ltd, Plot No P2, ITBT Park, Phase 2, Hinjawadi, Pune-411057.

The training has been in the Gral Solid Dosage plant for a period of one month, dated 5th June 2018 to 6th July 2018.

The student has shown exemplary behavior and demonstrated proactive attitude.

For Emcure Pharmacoutical Ltd.

Deepak Patil

Assistant Manager HR

IN - PLANT TRAINING CERTIFICATE

This is to certify that Priyanka Ashok Dabhade who is enrolled in the course M.Sc. (Industrial Chemistry) has completed her Industrial Training successfully at;

Emcur - Pharmaceutical Ltd, Plot No P2, ITBT Park, Phase 2, Hinjawadi, Pune-411057. The training has been in the Oral Solid Dosage plant for a period of one month, dated 61

The student has shown exemplary behavior and demonstrated proactive attitude.

For Emcure Pharmaceutical Ltd,

Deepak Patil

Assistant Manager HR

Date: 06/07/2018 13 Emoure Pharmacsudcals Living

Plot Pio. P. Z. L.T. - B. T. Park - Phoes R. M. D.O., Majord Phoes Dellar Metal e Phone Nos.: +91 20 - 39821300, Fax No.: -31 20 - 39221340 Registered Office: Emoure House, T-184, MJ.D.C., Bhosan, Pune -47'000 Phone Nos. 191-20-30610000, 27120004, Fac. No., 91-30-30610111 E-mail: corporals@smoura.co.in. www.smoura.co.in CITY LU24231FM1981PLC024251



unite

राष्ट्रीय केमिकल्स एण्ड फर्टिलाइजर्स लिमिटेड

(भारत सरकार का उपक्रम) तनमं : प्रशासनिक धवन, चेम्र, धुंबई - ४०० ०७४

RASHTRIYA CHEMICALS & FERTILIZERS LIMITED

(Government of India Undertaking)

WORKS: ADMINISTRATIVE BUILDING, CHEMBUR, MUMBAI-400 074.

PHONES: 022-25522000

HUMAN RESOURCE DEVELOPMENT CENTRE

CERTIFICATE

Name

Mr. Akash Ramrao Ghadage.

Institution

Shivaji University, Kolhapur.

Discipline

Chemical Engineering.

Period of Training

: 15/05/2018 to 15/06/2018

Leave taken during training: Nil

Off Days & Holidays : 04 Days

Nature of Training:

Study of water, gas&complex fertilizers sample

analysis with analytical instrumentation in Central

Chemical Laboratory.

Report of Training

Aspects	Very Good	Good	Fair	Average	Below Average
1. Conduct	1		-	-	-
2. Punctuality	1	-		-	
3. Knowledge	-	1	-	**	**
4. Interview Rating	-	1	-	-	**
5 Diary Rating	-	1	**	-	-

Special Remarks: He is punctual & hardworking

Date: 15-06-2018

Senior Manager (HRD) APENIN DE LINE

TOOR BANKS (MILLIA) S- Manager (HRD)

पंजीकृत कार्यालय: 'प्रियदेशीम्', ईस्टर्न प्रमापिस हाइवे, मुंबई - 400 022

REGD. OFFICE: PRIYADARSHINE, EASTERN EXPRESS HIGHWAY, MUMBAI-408 022.

PHONE: 022-25522000

SYMBIOSIS

Manufacturers of liquid orals & dry syrup

SYMBIOSIS CO-OP PHARMACEUTICALS LTD, SANGLI.

Ref. No:-SYM/019/18

Date:-10/06/2018

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. MAGAR SURAJ BAJIRAO from SHIVAJI UNIVERSITY, KOLHAPUR. DEPARTMENT OF INDUSTRIAL CHEMISTRY had undergone the industrial Project & Training from 22nd May 2018 to 10th Jun. 2018 in our premises.

He has successfully completed the Internship in Our Manufacturing, production area & Laboratory analytical work carried out in our Pharmaceutical Company.

During his training he has shown a keep learning orientation towards various aspects of our department.

He found hardworking & sincere during the tenure of training.

We wish him all the very success in his studies & successful carrier in future

Unit Flead

Symbiosis Co-Op. Pharmaceuticals Ltd. Sangli



VANITA AGROCHEM (INDIA) PVT. LTD.

Regd. Office: Gat No. 1036/1037, A/p. Takewade, Tat. Shirol, Dist. Kolhepur - 416121 INDIA

* Tet. +91 2322 264224 * Fax: +91 2322 264477 * E-rosil: factory@varvitaagin.com

CIN - U24119PN2003PTC018212

VAPL/HRD/Project Letter/2018-19/016

Date - 21" Aug., 2018

TO WHOMSOEVER IT MAY CONCERN:

This is to certify that Mr. Akshay Sudam Bharate, a student of Shivaji University, Kolhapur, has successfully completed his Project work during 25th June, 2018 to 20th July, 2018 in our company, with reference to the partial fulfillment of the requirements of the M.Sc. Course in Industrial Chemistry.

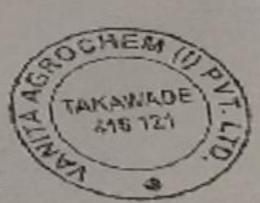
All necessary details were provided from our side for the establishment of this project.

We wish his very best in all his future endeavors.

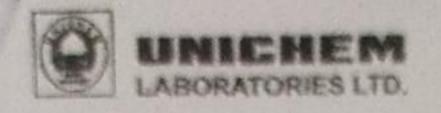
Thanking you,

For Vanita Agrochem (I) Pvt. Ltd.,

Mrs. Vaishali S. Gade - HR Manager







Date: 18th August, 2018

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Sourabh Padalkar has completed his industrial training in our organization from 21st May 2018 to 20th June 2018.

During his training span he was found to be sincere and hardworking.
We wish him all the best for his future endeavors

FOR UNICHEM LABORATORIES LIMITED

MRSANTOSH KSHIRSAGAR DY MANAGER-HUMAN RESOURCE Factory Plot No.: 3,

M.I.D.C., SHIROLI, KOLHAPUR - 416 122.

TEL: 0230 - 2469187, 2468984, 2469351

Email : admin@mistair.net



Certificate of Completion

This is to certify that Ms. More Snehal Balaso,
a student of M. Sc., Shivaji University, Kolhapur has
successfully completed training
programme from 09.05.17 to 30.05.17 at
Mistair Health & Hygiene Pvt. Ltd., Kolhapur.

During the period of her training programme with us she was found punctual, hardworking & inquisitive.

We wish her Every Success in Life.

MISTAIR HEALTH & HYGIENE PVT. LTD., PLOT No. 3, M.I.D.C. SHIROLI, KOLHAPUR

Ajit S Patil

Works Manager,

MISTAIR HEALTH & HYGIENE PVT. LTD.,

Kolhapur



EEREBOATTA SHETKARI SAHAKARI SAKHAR KARKFANA LTB., SHIROL की इत शेतकरी सहकारी साख्यर कारखाना लिमिटेड, शिरोळ.



POST DATTANAGAR 419 120 TALUKA SHIROL DIST KOLHAPUR CE NOVA पोस्ट : वसास्वर ४१६ १२०, लालुका दिलोक, जिल्हा कोल्हरपूर (नडार हु) नपर Phone : 02022) 20055" : 8 Unes : Fat (02022 23680)

E man hip dalls as his remail com-

Ref. No. - W /LWO/CERT-PROJECT/2016

Date: 23/06/2016

CERT FICATE

(To whom it may concern)

This is to certify that Pooja Maruti Kamble, Dipali Chardrakant Pandhare, Karishma Shabbir Mulla, Khushbhu Mustak Bagwan M.Sc. Student's from Shivaji University Ka hapor Department of Industrial Chemistry has completed inplant training in our Distillery Dept commencing from 04/06/2016 to 19/06/2016 as a part of their studies.

During above period they has shown keen interest and found to be sincere and hard working

This certificate is issued to them on specific request for education purpose and is not valid for purpose of any legal or Court matters.

We wish them every success in future endeavors

For Shri Deals S.S.S.K.Ltd. Shirol.

Managing Director

1

in the commence of the second section of the CA



WeiKFIELD FOODS PVT. LTD.





Fee Comespondence: Lonkand-Films Federal

Websited Estate, Gr. No. 455 Lonburst, Negar Road Salata Havel. Dist Fune 412 216, India.

Tel: +81-28-46322300 Fee: +81-89-89322346 8-mail: websited@websited.com

CIN No. Uttos (Author) FEE: 11.5040

13.06.2017

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Mrunali Suhas Kale studying Master of Science (Industrial Chemistry) from Shivaji University, Kolhapur, has successfully exampleted her industrial training from 15th May 2017 to 13th June, 2017 in our exampleted her industrial training from 15th May 2017 to 13th June, 2017 in our exampleted.

Draing the tenure of her internship we found her hardworking and sincere.

We wish her all the best in future.

For WeikField Foods Pvt. Ltd.

Kam Jadhay



Rasino Herbs Pvt. Ltd.

Fac - N-2, M.J.D.C. Chemical Zone, Kupwad, Sangli 416416 Off- 233, Bharat Ind. Estatae , LBS Marg, Bhandup(W), Mumbai Tel. 022-25963526, 32922378 Fax- 25962748 E-Mail: rasinoherbs@hotmail.com

AN ISO 9001:2008 & GMP CERTIFIED COMPANY

Ras/HRD/18-19/24



Date- 14.06.2018

TO WHOMESOEVER IT MAY CONCERN

This is certify that Mr. Amol Dnyaneshwar Javir has student of Shivaji University, Kolhapur, studying 2 nd year of M.Sc. in Industrial chemistry Department, has undergone in plant training in our company from 25 May 2018 to 13 June 2018.

During the study, his conduct and initiative were found excellent. We wish him best of Luck for his future.

For Rasino Herbs Pvt. Ltd.

(Mr. Krishna B. Mali)

Head of QA Dept.

SHIMOGA CHEMICALS

Migs. of Bulk drugs, intermediates and Custom synthesis

Date: - 25-05-2017 ·

TO WHOMSOEVER IT MAY CONCERN

This is to certify that MISS. PATIL MADHURI SAMBHAJI has undergone traing in QC*(Quality Control) from 10th May 2017 to 25th May 2017.

She is very sincere and hard working in his duties.

We wish him all the best in his future endeavors.

For Shimoga Chemicals

James -

しししししいい

C.S.Rao



Managing Partner



TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Swati Kalkundrikar has undergone training in Chemical Research & Development (Synthesis) Department of our Organisation based at Mumbai from 1st June, 2018 to 26th June, 2018.

Her training was found to be satisfactory.

For Ipca Laboratories Limited

AK

Dr Ashok Kumar President - R&D (Chemicals)

Place : Mumbal

E

Date : 26th June, 2018



OART | PRI-CER | 1818-19 / 4 Date: 21/06/2018

TO WHOM IT MAY CONCERN

This is to certify that Mr. Zari Maksud Mainuddin, a student from Shivaji University, Kolhapur (Dept. of Industrial Chemistry) is awarded this certificate in recognition of his satisfactorily completion of one month of Industrial Training Program on "Industrial Chemistry" between the period 21" May 2018 till 21" June 2018.

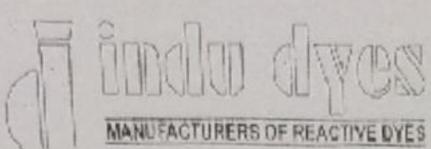
We wish him every success in life.

CHI STORESCONICESSORICE LANGE

for OmniActive Heath Technologies Limited, Pune

Authorized Signature

Communicative Health Technologies Limited



FACTORY: E-61, M.I.D.G., SHIROLL, KOLHAPUR, PH. 0230-2458320 E-mail: indudyes@gmail.com,info@indudyes.in

DATE:-20/07/2018

CERTIFICATE

To Whomsoever Concerned

This is to certify that Miss. Sonal Babaso Patil (M.Sc. Part I, Industrial Chemistry) has templeted her Industrial Project / Training from the period 05-06-18 to 30-06-18 in our Factory.

She was found to be hard working and sincere in her course.

For Indu Dyes

227500

Strianand Patil)

Protein Portal - The Comprehensive Resource for Protein Databases

Thesis submitted to

Department Of Biotechnology Engineering, Kolhapur

for the award of the degree of

B.E.BIOTECHNOLOGY ENGINEERING

By

Aishwarya S. Rasal

Under the guidance of

Ms. Sayali G. Kulkarni

Department Of Biotechnology Engineering, KIT's College Of Engineering

And Prof. (Dr.) Kailas Sonawane

Shivaji University, Kolhapur



April, 2017

© 2017, Aishwarya S. Rasal, All rights reserved



KIT's College Of Engineering

Department of Biotechnology, Kolhapur

CERTIFICATE

Certified on Saturday, 15thApril 2017, that the thesis titled "Protein Portal - The Comprehensive Resource For Protein Databases" submitted by Ms. Aishwarya S. Rasal to the Department Of Biotechnology, KIT's College Of Engineering, Kolhapur, for the award of the degree "B.E. Biotechnology Engineering" has been accepted by the external examiners, and that the student has successfully defended the thesis in the viva voce examination held today.

GUIDE

HEAD OF DEPT

EXAMINER

PRINCIPAL

APPROVAL OF SUPERVISORS

This is to certify that the thesis titled "Protein Portal - The Comprehensive Resource For Protein Databases" submitted by Ms. Aishwarya Shashikant Rasal to the Department of Biotechnology, KIT's College Of Engineering, Kolhapur for the degree of "B.E. Biotechnology Engineering" is a bona fide record of the research work carried out by her in the Department of Biotechnology, KIT's College Of Engineering, Kolhapur, under my supervision. Ms. Aishwarya Shashikant Rasal has worked on this topic from June2016 till April 2017 and the thesis, in my opinion, is worthy of consideration for the award of the degree "B.E. Biotechnology Engineering". The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree, diploma, or certificate.

Signature:

Guide: Ms. Sayali G Kulkarni

Affiliation: Department Of Biotechnology Engineering

Deullearni

KIT's College Of Engineering, Kolhapur

Date:

Signature:

Guide: Prof. (Dr.) Kailas Sonawane

Affiliation: Department Of Microbiology

Shivaji University, Kolhapur

Date:

R.S. No. 199B/1-3, Gokul Shirgaon, Kolhapur - 416 234.

Maharashtra, INDIA.

Tel. +91 7769001199, 9168781199

Fax +91 231 263 8881 Email: info@kitcoek.in Web: www.kitcoek.in



Accredited 'A' Grade by NAAC with CGPA 3.12

KIT/CEK/ No 1 8 6 3

Date 2 1 NOV 2017

To,

Dr.Kailas D Sonawane

Head of the Department

Microbiology Dept.

Shivaji University

Kolhapur.

Subject: M.E Dissertation Phase work.

Dear Sir,

Kolhapur Institute of Technology's College of Engineering Kolhapur, Maharashtra is affiliated to Shivaji University Kolhapur and approved by AICTE since 1983. Recently the Institute is accredited by NAAC with 'A' grade (ranked among the top 5 colleges applied for NAAC with CGPA 3.12). The Institute is offering degree course B.E. in Biotechnology Engineering since 2002 and post graduate course M.E. (Biochemical Engg. & Biotech) since 2008. As per the university curriculum, M.E. students are required to carry out dissertation work for completion of their M.E. Degree.

I recommend Ms. Rasika R. Ingale for her M.E. Biochemical Engineering and Biotechnology student's project work and will highly appreciate your guidance as her supervisor for project work which will immediately benefit her to carry out the dissertation work for her post-graduation. For the same project work Mr. Atish S Chavan will work as a Guide for her.

Kindly consider this request and accommodate our student as per your protocol.

Looking forward for a continued association with your institute and awaiting for your reply at the earliest.

Thanking you,

Yours sincerely

Dr.Mrs. M.R.Sanandam

Head

Dept. of Biotech Engg.

KIT's College of Engg., Kolhapur.

Kolhapur Santonius

Smoont and to guide smoont



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za> To: "Dr. K.D. Sonawane" <kds biochem@unishivaji.ac.in> Tue, Dec 11, 2018 at 3:11 PM

Dear Prof Sonawane,

It was nice catching up with you yesterday on phone. I am waiting for the enzyme assays that you are currently carrying out in your lab. I intend to visit your lab for a day this Jan 2019 to take this collaboration further.

I look forward to your email.

All best regards,

Raj

Dr. Rajshekhar Karpoormath, M. Pharm, PhD

Synthetic and Medicinal Chemistry Research Group (SMCRG)

Faculty- Medicinal Chemistry

Dept. of Pharmaceutical Chemistry

Discipline of Pharmaceutical Sciences

College of Health Sciences

UKZN, Westville Campus, Durban, South Africa.

Tel: +27 31 260 7179, Fax: +27 (0) 31 260 7792

Email: karpoormath@ukzn.ac.za

Website: http://smcrg.ukzn.ac.za/Homepage.aspx



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Dr. K.D. Sonawane <kds biochem@unishivaji.ac.in> To: Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za> Tue, Dec 11, 2018 at 5:09 PM

Dear Prof. Karpoormath,

Good to see your email. Yes, indeed I had nice time talking with you yesterday. We would also like to take our research collaboration further. We perform following enzyme assays in our department; proteases, glycosidase, chitinase, pectinase, cellulase, lipases, aminophosphotransferases, beta-lactamases, lignin peroxidase, polyphenol oxidase. Along with this we also perform anitmicorbial, antifungal, antioxidant, antibiotic resistance studies.

Our lab is well known for bioinformatics studies also such as molecular modeling studies using quantum chemical and molecular mechanics methods, homology modeling, molecular docking, molecular dynamics simulation studies of proteinprotein, protein/DNA-drug interactions, binding energy calculations, etc.

You are welcome in Jan., 2019 in our department. Please convey your date of visit.

Thanks and regards. Prof.K.D. Sonawane

Prof. Kailas Dashrath Sonawane, FMASc.

(NIH Post Doctoral Fellow, USA)

Professor,

Department of Biochemistry,

Head(I/c): Department of Microbiology,

Co-ordinator: PG Diploma in Bioinformatics

Shivaji University, Kolhapur-416004

Maharashtra, India

Website: www.unishivaji.ac.in

Phone: 9881320719 - Mobile

Email:kds biochem@unishivaji.ac.in; kdsonawane19@gmail.com

[Quoted text hidden]



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za> To: "Dr. K.D. Sonawane" < kds_biochem@unishivaji.ac.in>

Tue, Dec 11, 2018 at 8:11 PM

Dear Prof Sonawane,

Thank you for your email. I am really interested in utilizing your expertise in computational and various enzyme assay studies. My tentative dates of the visit to your lab are 21st and 22nd Jan 2019.

Kindly send me an official invitation on your letterhead.

Thank you

All best regards,

Raj

Dr. Rajshekhar Karpoormath, M. Pharm, PhD

Synthetic and Medicinal Chemistry Research Group (SMCRG)

Faculty- Medicinal Chemistry

Dept. of Pharmaceutical Chemistry

Discipline of Pharmaceutical Sciences

College of Health Sciences

UKZN, Westville Campus, Durban, South Africa.

Tel: +27 31 260 7179, Fax: +27 (0) 31 260 7792

Email: karpoormath@ukzn.ac.za

Website: http://smcrg.ukzn.ac.za/Homepage.aspx

From: Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Sent: Tuesday, December 11, 2018 1:39:06 PM

To: Rajshekhar Karpoormath **Subject:** Re: Collaboration

[Quoted text hidden]

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the Shivaji University. Finally, the recipient should check this email and any attachments for the presence of viruses. Shivaji University accepts no liability for any damage caused by any virus transmitted by this email.



Rajshree gavhane <rajshree.gavhane91@gmail.com>

Fw: ICDD 2020 Election of Officers and Directors

D.S. Bhange

 bhangeds@yahoo.co.in>

Fri, Jan 31, 2020 at 11:48 AM

To: "rajshree.gavhane91@gmail.com" <rajshree.gavhane91@gmail.com>

Dr. D.S. Bhange Assistant Professor, Dept. of Chemistry Shivaji University Kolhapur-416004 India.

---- Forwarded message -----

From: International Centre for Diffraction Data <vote@simplyvoting.com>

To: Deu Bhange <bhangeds@yahoo.co.in> Sent: Friday, 24 January, 2020, 08:46:01 pm IST Subject: ICDD 2020 Election of Officers and Directors

Hello Deu Bhange,

You are registered to vote in ICDD 2020 Election of Officers and Directors. This ballot ends at 2-25-2020 23:59 US/Eastern.

To vote, follow this link to access the ballot https://icdd.simplyvoting.com/auth.php?e=85311&mac= 50ee7367056818ca6091. A password is NOT needed to vote.

Please keep in mind that submitting a ballot in this election maintains your status as an active member of ICDD.

Regards,

Theresa Maguire, Corporate Secretary International Centre for Diffraction Data

Unsubscribe



Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Visit to LaCONES - 10.2.2017

2 messages

Lacones lacones@ccmb.res.in

Fri, Feb 10, 2017 at 12:33 PM

To: "Dr. P S Raju" <rajucsir@ccmb.res.in>, mvdrsanthakumar@gmail.com

Cc: B Sambasiva Rao <sambasiva@ccmb.res.in>, "Afsar soghra\"Sent" <soghra@ccmb.res.in>, S Rajyalakshmi <rajyalakshmi@ccmb.res.in>

boxbe Lacones (lacones@ccmb.res.in) is not on your Guest List | Approve sender | Approve domain

50 M.Sc. zoology students of Kolhapur Shivaji University, Maharashtra along with faculty member will be visiting LaCONES today i.e., on February 10, 2017 at 3.00 PM. The following is the programme:

3.00 pm - Arrival

3.00-3.30 pm - Welcome and screening of LaCONES movie

3.30-4.00 pm - Interaction with Dr. Sambasiva Rao and visit to other facilities

4.00-4.30 pm - Tea and biscuits at canteen on payment basis

- Departure

Requesting Dr. Santa Kumar to take the group photograph of your visit and to be sent at lacones@ccmb.res.in Mrs. Soghra to meet the visitors on arrival and play the movie and organize the interaction talk with Dr. Sambasiva Rao in the auditorium.

Mrs. Rajyalakshmi to arrange for refreshments

Regards

Karthikeyan Vasudevan Ph.D. Senior Principal Scientist Laboratory for the Conservation of Endangered Species (LaCONES) Centre for Cellular and Molecular Biology 162 Pillar, PVNR Expressway, Attapur Ring Road, Hyderguda, Hyderabad 500 048

Office: +91-40-24006443 fax: +91-40-24006441 Cell: +91-9491036403

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Fri, Feb 10, 2017 at 1:34 PM

To: Lacones <lacones@ccmb.res.in>

Respected Sir,

Thank you verymuch. We will be reaching there by 3.00 pm.

Dr.Santha Kumar. (9130023099 /9434055590)

On Fri, Feb 10, 2017 at 12:33 PM, Lacones lacones@ccmb.res.in wrote:

boxbe Lacones (lacones@ccmb.res.in) is not on your Guest List | Approve sender | Approve domain

50 M.Sc. zoology students of Kolhapur Shivaji University, Maharashtra along with faculty member will be visiting LaCONES today i.e., on February 10, 2017 at 3.00 PM. The following is the programme:

3.00 pm Arrival

3.00-3.30 pm - Welcome and screening of LaCONES movie

3.30-4.00 pm - Interaction with Dr. Sambasiva Rao and visit to other facilities

4.00-4.30 pm - Tea and biscuits at canteen on payment basis

4.30 pm - Departure

Requesting Dr. Santa Kumar to take the group photograph of your visit and to be sent at lacones@ccmb.res.in Mrs. Soghra to meet the visitors on arrival and play the movie and organize the interaction talk with Dr. Sambasiva Rao in the auditorium.

Mrs. Rajyalakshmi to arrange for refreshments

Regards

Karthikeyan Vasudevan Ph.D. Senior Principal Scientist Laboratory for the Conservation of Endangered Species (LaCONES) Centre for Cellular and Molecular Biology 162 Pillar, PVNR Expressway, Attapur Ring Road, Hyderguda, Hyderabad 500 048

Office: +91-40-24006443 fax: +91-40-24006441 Cell: +91-9491036403



anna gophane <anna.gophane@gmail.com>

Regarding accommodation for students

3 messages

anna gophane <anna.gophane@gmail.com>

To: directornbaii@gmail.com Cc: shyleshaan.nbaii@gmail.com Fri, Feb 1, 2019 at 8:08 PM

Respected Sir/Madam

A group of 10 students and 1 teacher of Department of Zoology, Shivaji University, Kolhapur (MH) is going to visit your reputed research institute during 4th to 6th of February 2019. I request you to kindly arrange accommodation at your trainee hostel. Among 10 students there are 7 girls, 3 Boys and 1 gents staff so please arrange accordingly.

Expecting your kind cooperation and earlier response Thanking you

Anna Gophane Assistant Professor Department of Zoology Shivaji University, Kolhapur

Arakalagud Nanjundaiah shylesha <anshylesha@gmail.com>

Sat, Feb 2, 2019 at 11:45 AM

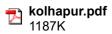
To: anna gophane <anna.gophane@gmail.com>

I enquired from guest house incharge. Sorry no accommodation available. shylesha

[Quoted text hidden]

Dr. A.N. Shylesha, **Principal Scientist Entomology,** ICAR-National Bureau of Agricultural Insect Resources (NBAIR) P.O. Box No. 2491, Hebbal Agricultural Farm Post, Bellary road, Hebbal, Bangalore 560 024. 08023511982,(ext.341),(M). 91-9480424706 Fax. 080-23411961

email: anshylesha@gmail.com



NBAIR Guesthouse <guesthousenbaii@gmail.com>

Sat, Feb 2, 2019 at 11:49 AM

To: anna.gophane@gmail.com

Dear Sir

With reference to your email dated 1.2.19, due to prior booking of rooms at NBAIR guest house for officials on said dates, room is not available at NBAIR guest house. The inconvenience is deeply regretted. Regards,

On Fri, Feb 1, 2019 at 8:51 PM Director NBAIR <a href="mailto:sirche-under state-under sta

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलूरु [Quoted text hidden]

Satendra Kumar, NBAIR

Note:

- Guest room charges will be based on the person residing in the room not the person who has booked.
- Identity card is must as proof for employee/staff, issued by their Institute/organization to stay in the room.
- Priority would be in order of ICAR/SAU/Gov. of India/PSU/Pvt.
- Identity card is must as proof for private persons to stay in the room.
- Room booking will be Maximum for 5 days only.



Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com >

Request for permission to visit the Institute... reg.

5 messages

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> To: directornbaii@gmail.com Fri, Nov 29, 2019 at 1:37 PM



20191129_123219.jpg 4147K

HRD NBAIR <hrd.nbair@gmail.com>

Thu, Dec 5, 2019 at 2:37 PM

To: gaikwadsm@rediffmail.com, mvdrsanthakumar@gmail.com
Cc: Chandish Ballal <ballalchandish@gmail.com>, Rajagopal Rangeshwaran <rangeshw@gmail.com>, Y Lalitha
<ylalitha3112@yahoo.co.in>, Yadavalli Lalitha <ylalitha31121961@gmail.com>, Pralhad Sonkusare
com>

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer
Division of Germplasm collection and characterization
ICAR- National Bureau of Agricultural Insect Resources
P. Bag No. 2491, H.A. Farm post
Bellary Road, Bengaluru - 560 024
Karnataka, India
Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR directornbail@gmail.com wrote:

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> To: HRD NBAIR <hrd.nbair@gmail.com>

Thu, Dec 5, 2019 at 2:49 PM

io. Til D 1457 in C 4 ii a.ii baii @gii aii. 30 iii

Thank You Very much Sir for your kindness to allowing our students to your esteemed Institute. This well help them in visualising their theoretical knowledge of Agricultural Entomology. Dr. S.M.Gaikwad, our Faculty member will be guiding these students during the visit. He will be in touch with you.

With kind regards,

Yours sincerely,

Dr. V.S. Manne,

Head,

Department of Zoology,

Shivaji University,

Kolhapur.

On Thu, 5 Dec 2019, 2:39 pm HRD NBAIR <hrd.nbair@gmail.com wrote:

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR <directornbaii@gmail.com> wrote:

धन्यवाद

Chandish R. Ballal

Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

To: Sunil Gaikwad <gaikwadsm@rediffmail.com>

Thu, Dec 5, 2019 at 2:50 PM

----- Forwarded message ------

From: HRD NBAIR <hrd.nbair@gmail.com>

Date: Thu, 5 Dec 2019, 2:39 pm

Subject: Re: Request for permission to visit the Institute... reg.

To: <gaikwadsm@rediffmail.com>, <mvdrsanthakumar@gmail.com>

Cc: Chandish Ballal ballalchandish@gmail.com, Rajagopal Rangeshwaran rangeshw@gmail.com, Y Lalitha

<ylalitha3112@yahoo.co.in>, Yadavalli Lalitha <ylalitha31121961@gmail.com>, Pralhad Sonkusare

cpralhad.ks@gmail.com>

Sir,

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization ICAR- National Bureau of Agricultural Insect Resources P. Bag No. 2491, H.A. Farm post Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR director: NBAIR <a href="mailto:r

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

Thu, Dec 5, 2019 at 2:50 PM

Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

To: Sunil Gaikwad <gaikwadsm@rediffmail.com>

----- Forwarded message ------

From: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Date: Thu, 5 Dec 2019, 2:49 pm

Subject: Re: Request for permission to visit the Institute... reg.

To: HRD NBAIR <hrd.nbair@gmail.com>

Thank You Very much Sir for your kindness to allowing our students to your esteemed Institute. This well help them in visualising their theoretical knowledge of Agricultural Entomology. Dr. S.M.Gaikwad, our Faculty member will be guiding these students during the visit. He will be in touch with you.

With kind regards, Yours sincerely, Dr. V.S. Manne, Head. Department of Zoology, Shivaji University, Kolhapur.

On Thu, 5 Dec 2019, 2:39 pm HRD NBAIR hrd.nbair@gmail.com wrote:

I am writing to confirm your students visit to our Bureau on 12.12.19, Thursday

We hope to show you some video clips of Institute activities/ classical biological control success and exposure visits to our mass production unit, wherein we are maintaining maximum live insect cultures in Asia. The visit usually takes half to one hour.

Thank you for your interest and I look forward to hearing from your students and staff

You may contact the undersigned for your proposed visit. Kindly acknowledge.

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer Division of Germplasm collection and characterization ICAR- National Bureau of Agricultural Insect Resources P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024 Karnataka, India

Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

On Fri, 29 Nov 2019 at 14:34, Director NBAIR director: NBAIR <a href="mailto:r

धन्यवाद

Chandish R. Ballal Director, NBAIR, Bangalore

निदेशक

राष्ट्रीय कृषि कीट संसाधन ब्यूरो

बेंगलुरु

----- Forwarded message ------

From: Manne Venkata Santha Kumar < mvdrsanthakumar@gmail.com>

Date: Fri, Nov 29, 2019 at 1:37 PM

Subject: Request for permission to visit the Institute... reg.

To: <directornbaii@gmail.com>

Sincerely,

Dr. M. SAMPATH KUMAR

Scientist & HRD Co-Nodal Officer

Division of Germplasm collection and characterization

ICAR- National Bureau of Agricultural Insect Resources

P. Bag No. 2491, H.A. Farm post

Bellary Road, Bengaluru - 560 024

Karnataka, India Mobile: 08790587493

E-mail: hrd.nbair@gmail.com

SOME CONTRIBUTION TO NANOELECTRONIC LOGIC AND MEMORY

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY KOLHAPUR

FOR THE DEGREE OF

M.Sc.

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE

MR. PRITAM P. CHOUGULE

UNDER THE GUIDANCE OF

DR. M. N. LUWANG

M.Sc., Ph.D.

AND

UNDER THE CO-GUIDANCE OF

DR. T. D. DONGALE

M.Sc., Ph.D.

COMPUTATIONAL ELECTRONICS AND NANOSCIENCE RESEARCH LABORATORY, SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY SHIVAJI UNIVERSITY, KOLHAPUR

(2016)

"IN-SITU EXTRACELLULAR FUNGAL SYNTHESIS OF METAL NANOPARTICLES"

Thesis submitted to school of Nanoscience and Technology,

Shivaji University, Kolhapur

For the degree of

Masters of Science in Nanoscience and Technology

By

Miss. Sangar Madhuri Anil

Under The Guidance Of

Mrs. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory,

Pune - 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nanoscience & Technology,

Shivaji University, Kolhapur.

2016-2017

Study of Organic Perovskite Materials for Solar Cells

A Dissertation of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR

For the Degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Mr. ROHAN PASTE

UNDER THE GUIDANCE OF

Dr. Kartick Tarafder,

Assistant Professor,
Department of Physics,
National Institute of Technology Karnataka
Surathkal, Mangaluru-575025
Karnataka, India.

And

UNDER THE CO-GUIDANCE OF

Dr. P.S. Patil,

Coordinator,

School of Nanoscience and Technology, Shivaji University Kolhapur- 416004, Maharashtra- India.

(2017)





Study of Thermally Synthesized Graphitic Carbon Nitride Based Nanocomposite for Photocatalytic Application

A Project Report Submitted To

SHIVAJI UNIVERSITY, KOLHAPUR

For the Partial Fulfillment

of

Degree of Master of Science

In

Nanoscience and Technology

Under The Faculty Of Science

By

Miss. Vidya Vasant Alman

B. Sc. (Nanoscience and Technology)

Under The Guidance of

Dr. S. P. Gokhale

Principal Scientist

Physical and Materials Chemistry Division

CSIR-National Chemical Laboratory

Pune-411008

SCHOOL OF NANOSCIENCE AND TECHNOLGY, SHIVAJI UNIVERSITY, KOLHAPUR (INDIA) 2017-2018

A Synopsis of the Proposed Research Project Submitted to School Of Nanoscience and biotechnology

Title

SYNTHESIS OF BIOCOMPATIBLE AND BIODEGRADABLE POLYMERSOME FOR TARGETED DRUG DELEVERY

BY

JYOTI TANAJI THANEKAR.

M. Sc.

NANOSCIENCE

(Faculty of Science)

Under the Guidance of

Dr. Baijayantimala Garnaik

(Sr. Pr. Scientist)
PSE DIVISION
CSIR – NCL, PUNE

Co-Guide

Dr. K. K. Sharma

(Assistant Professor)
SHIVAJI UNIVERSITY, KOLHAPUR-416004
(2017)

FUNGAL AND ENZYMATIC SYNTHESIS OF NANOPARTICLES, CHARACTERIZATION AND APPLICATIONS

Thesis of the proposed research project submitted to

SCHOOL OF NANOSCIENCE AND TECHNOLOGY

For the degree of

Master of Science

IN

NANOSCIENCE AND TECHNOLOGY

Under the Faculty of Science

BY

Miss. Priteeka Pradip Suryawanshi

M.Sc. II (Post Graduate Student)

Under The Guidance of

Dr. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory, Pune 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nano science and Technology, Shivaji University, Kolhapur, 2017-2018





Synthesis and Characterization of UV Curable Hybrid Nanocomposites and their Applications in Coatings

A dissertation submitted to

Shivaji University, Kolhapur

For the degree of

MASTER OF SCIENCE

In

Nanoscience and Technology

Under the faculty of **Science and Technology**

By

Miss. Pranita Prakash Magadum

Under the guidance of

Dr. P. P. Wadgonkar

Dr. K. K. Sharma

(Chief Scientist)

(M. Sc., Ph.D.)

Guide

Co-guide

School of Nanoscience & Technology, Shivaji University Vidyanagar, Kolhapur- 416004

&

Laboratory CSIR-National Chemical (NCL), Pune-411008

May 2017-18

PHOTOCATALYSIS FOR WATER SPLITTING

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

MAHESHWARI M. KHOT

UNDER THE GUIDANCE OF

<u>Dr. C.S.GOPINATH</u>

Senior Principal Scientist

SCHOOL OF NANOSCIENCE AND TECHNOLOGY,

SHIVAJI UNIVERSITY, VIDYANAGAR

KOLHAPUR – 416 004

MAHARASHTRA, INDIA.

CERTIFICATE

This is to certify that the dissertation entitled, "Photocatalysis For Water Splitting" which is being submitted herewith for the award of the degree of Master of Science in Nanoscience and Technology of Shivaji University, Kolhapur is the result of the original research work completed by Ms. Maheshwari. M. Khot under my supervision and guidance and to the best of my knowledge and belief, the work embodied in this dissertation has not formed earlier the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Place:	Kol	lhapur
--------	-----	--------

Date:

Signature of the Research Guide

Signature of the Research Co-guide

Dr. C. S. Gopinath

Dr. K. K. Sharma

CSIR-National Chemical Laboratory,

School of Nanoscience and Technology,

Pune.

Shivaji University, Kolhapur.

Signature of Coordinator

Prof. (Dr.) P. S. Patil.

School of Nanoscience and Technology,

Shivaji University, Kolhapur.

DECLARATION

I hereby declare that the dissertation entitled "*Photocatalysis For Water Splitting*" completed and written by me has not previously formed the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Further I declare that I have not violated any of the provisions under the acts of Copyright/Privacy/ Cyber/IPR etc. amended from time to time.

Place: Kolhapur Ms. Maheshwari. M. Khot

Date: Research Student

ACKNOWLEDGEMENTS

It gives me great pleasure to express my deep sense of gratitude towards my guide and mentor, **Prof** (**Dr.**) **C. S. Gopinath**. Working under his guidance is one of the most rewarding experiences in my life only because of his generous attitude, constant encouragement, constructive criticism, erudite guidance and unending interest.

I am very much thankful to CSIR- National Chemical Laboratory, Pune for providing me the necessary facilities during my project.

I am very much thankful to **Prof.** (**Dr.**) **P. S.Patil** Head of Department of School of Nanoscience and Technology, Shivaji University, Kolhapur.

I gratefully acknowledge to my Co-guide Prof (Mr.) K. K. Sharma. Also Prof (Ms.). S. Jagadale for their constant support during my research work.

I must thank to all my school and college teachers, because of their valuable guidance. I could shape up my carrier in right way and able to see my dreams coming true.

I am thankful to all labmates for constant encouragement and moral support, Ms. Pradnya, Ms. Ruchi, Ms. Layana, Ms. Kshirodra, Dr.Naresh, Mr. Manoj, Mr.. Prabhakar, Mr. Nitin, Mr. Himanshu, Mr. Ravi for their help. My special thanks to Ms. Pradnya Bharad for her cooperation and friendly advice received during the progress of this project.

Especially I am very thankful to all my friends who helped me in various level. I am grateful to my all classmate's and friends from SNST for their help and encouragement during my research work.

Finally, Words are insufficient to express my thanks to my thanks to my beloved parents, husband Mr. Shrinath of their support. This wouldn't have been possible without the extreme strength, love, understanding and most precious blessings I received from them.

Maheshwari khot

CONTENTS

Chapter	Title of Chapter	Page

No.		No.
1.	Introduction to photocatalysis for water splitting	
	1.1 Nanotechnology	
	1.1.1 Evolution of Nanotechnology	
	1.1.2 Segments of Nanotechnology	
	1.1.3 Applications of Nanotechnology	
	1.1.4 Advantages of Nanotechnology	
	1.1.5 Disadvantages of Nanotechnology	
	1.1.6 Chemistry of Nanoparticle	
	1.2 Concept of Catalysis and Photocatalysis	
	1.2.1 Catalysis	
	1.2.2 Catalyst Mechanism	
	1.3 Concept of Nano-Catalysis	
	1.4 Introduction Photocatalyst	
	1.4.1 Photocatalysis	
	1.4.2 Transition Metal Oxides as photocatalyst	
	1.4.3 Titanium Dioxide (TiO2)	
	1.4.4 Structure of Titanium Dioxide (TiO2)	
	1.4.5 Semiconductor as photocatalyst	
	1.5 Principle of Photocatalysis	
	1.5.1 Requirement for good photocatalyst	
	1.5.2 Application of Photocatalyst	
	1.6. Photocatalytic Water Splitting	
	1.6.1 Artificial Photosynthesis	
	1.6.2. Artificial Leaf	
	1.7. Potential of making fuels using sunlight	
	1.7.1 Hydrogen Production	
	1.7.2. Hydrogen Production from Water	
	1.8. Reaction Mechanism	
	1.9. Structure related properties of TiO ₂	
	1.9.1 Strategies to develop visible light photocatalysts	
	1.9.2 Bandgap engineering	

1.9.3 Plasmonic Nanostructures for Solar Water Splitting	
1.9.4 Schottky junction and direct electron transfer (DET)	
1.9.5 Near field electromagnetic and scattering mechanism	
1.9.6 Plasmon resonant energy transfer-	
1.10 Role of Co-Catalyst	
1.11 Fabrication of Heterojunction	
1.11.1 CdS/TiO2 Heterojunction-	
1.12 The Role of Sacrificial Agent	
Literature Survey	
Synthesis and Methodology	
3.1 Preparation of light absorbing material	
3.1.1 Doctor Blade Method	
3.1.2 SILAR	
3.2 <u>Synthesis</u>	
3.3 <u>Fabrication of photochemical cell</u>	
3.2.1 Catalyst Preparation	
3.3.1 Preparation of Au-TiO ₂ paste	
3.3.2 Preparation FTO/TiO ₂ /PbS film	
3.3.3 Preparation of FTO/TiO2/PbS/CdS film	
3.3.5 Deposition of Cocatalyst	
3.4 Method for catalytic activity study- photocatalytic water	
splitting	
Result and Discussion	
4.1 Physicochemical Characterization	
4.2 UV-Visible Spectroscopy	
4.3 X-ray Diffraction (XRD)	
4.4 Scanning Electron Microscopy	
4.5 Transmission Electron Microscopy	
4.6 Photocatalytic Hydrogen Generation:	
4.7 Significance of work	
4.8 Mechanism	
4.0 Wechanish	
	1.9.4 Schottky junction and direct electron transfer (DET) 1.9.5 Near field electromagnetic and scattering mechanism 1.9.6 Plasmon resonant energy transfer- 1.10 Role of Co-Catalyst 1.11 Fabrication of Heterojunction 1.11.1 CdS/TiO2 Heterojunction- 1.12 The Role of Sacrificial Agent Literature Survey Synthesis and Methodology 3.1 Preparation of light absorbing material 3.1.1 Doctor Blade Method 3.1.2 SILAR 3.2 Synthesis 3.3 Fabrication of photochemical cell 3.2.1 Catalyst Preparation 3.3.1 Preparation of Au-TiO2 paste 3.3.2 Preparation FTO/TiO2/PbS film 3.3.3 Preparation of FTO/TiO2/PbS/CdS film 3.3.5 Deposition of Cocatalyst 3.4 Method for catalytic activity study- photocatalytic water splitting Result and Discussion 4.1 Physicochemical Characterization 4.2 UV-Visible Spectroscopy 4.3 X-ray Diffraction (XRD) 4.4 Scanning Electron Microscopy 4.5 Transmission Electron Microscopy 4.6 Photocatalytic Hydrogen Generation: 4.7 Significance of work

6. References	
---------------	--

GREEN SYNTHESIS OF METAL NANOPARTICLES AND THEIR APPLICATIONS IN BIOMEDICINE

A Synopsis of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR.

For the degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY.

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY BY

RUTUJA S. GUMATHANNAVAR.

UNDER THE GUIEDENCE OF

Dr. BHUSHAN P. CHAUDHARI Principle Scientist

Biochemical Sciences Division, CSIR – National Chemical Laboratory (NCL), Dr. Homi Bhabha Road, Pashan, Pune 411008.

UNDER THE CO-GUIDENNCE OF

Dr. K.D. PAWAR Assistant Professor, PhD.

School of Nanoscience and Biotechnology, Shivaji University, Kolhapur - 416004.

September (2017)

Development of Binary metal Oxide Nanostructures and their Applications as electrode Materials for Supercapacitors

A Dissertation of the Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Ms. Pratiksha D. Donolikar B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil M.Sc., Ph.D.

Center For Materials For Electronics Technology (C-MET)

Pashan Pune,

(2017-18)

Development of AB₂O₄ type Metal Oxide Nanostructures and their Applications as Electrode Material for Supercapacitors

A Synopsis of the Proposed Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Mr. Sagar D. Jadhav

B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil

M.Sc., Ph.D.

Centre for Materials for Electronics Technology (C-MET),
Pune

(2017-18)

SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

SNEHAL SUNIL JAGADALE

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018



SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

ANUJA ANNASAHEB HAREL

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018



WORK IS WORSHIP

Principal: Dr. V. W. Patil M. A., M. Phil., Ph. D.

: 0231-2621187, 2621180 Phone

E-Mail : nck@newcollege.ac.in nck30.cl@unishivaji.ac.in

Website: www.newcollege.ac.in



SHRI PRINCE SHIVAJI MARATHA BOARDING HOUSE'S

(Awardee of 'An Ideal Institution' by Government of Maharashtra)

THE NEW COLLEGE, KOLHAPUR

ARTS, COMMERCE, SCIENCE, B.C.S., B.C.A. & B.B.A.

Affiliated to Shivaji Unversity, Kolhapur & Reaccredited by NAAC (with 'B' Grade)

1062, 'A' Ward, Shivaji Peth, Kolhapur - 416 012, Maharashtra

Ref. No.: NCK: 2882 /2019

प्रति.

मा. विभागप्रमुख,

डॉ. एम. व्ही. शांताकुमार,

प्राणिशास्त्र विभाग, शिवाजी विद्यापीठ, कोंल्हापूर.

Date: 06/12/2020



विषय : बी.एस्सी.भाग दोन व तीन प्राणीशास्त्र विभागातील विद्यार्थ्यांच्या अभ्यास सहली बाबत...

महोदय.

वरील विषयास अनुसरुन, आपल्या ग्राणिशास्त्र विभागामधील ॲनिमल हाउस आमच्या विद्यार्थ्यांना पाहण्यासाठी व सखोल अभ्यास करण्यासाठी दि. १०/०२/२०२० रोजी आपली परवानगी मिळावी. ही विनंती.

आपला विश्वास्

(डॉ.व्ही.एम.पाटील)

प्राचार्य. न्यू कॉलेज, कोल्हापूर भ

Sri. Yogesh Mane,

Please note.

81. 2020.

रयत शिक्षण संस्थेचे.



कर्मवीर भाऊराव पाटील महाविद्यालय, पंढरपूर (रवायता)

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ, सोलापूर संलग्नित कर्मवीर पथ, पंढरपूर - ४१३ ३०४, जि. सोलापूर (महाराष्ट्र)

Jr. College Index No. : J 24.08.001

ন্ত ऑफस : (০२৭८६) २२३৭०४ * E-mail : kbppandharpur@gmail.com * Website : www.kbpmpandharpur.in

संस्थापक : पदाभूषण डॉ. कर्मवीर भाऊराव पाटील क्रा.लट,

'A+' सी.जी.पी.ए. : 3.49 (२०१७ पासून)

डी.एस.टी.-फिस्ट योजना भारत सर्कार (२०१३ पासून)

आदर्श महाविद्यालय पारितोषिक पु.अ.हो, सोलापूर विद्यापीठ, सोलापूर व रयत शिक्षण संस्था, सातारा

यु.जी.सी. सी.पी.ई. दर्जा (2096-96)

परामर्श योजना (2099-20)

जा. क्र. 1407 /2019-20 दिनांक: 20/01/2020

प्राचार्य डॉ. अशोक एस्. भोईटे एम्.एस्सी, पीएच्.डी.

मा. विभागप्रमुख, प्राणीशास्त्र विभाग, शिवाजी विद्यापीठ, कोल्हापूर

विषय: प्राणीशास्त्र विभागाचे म्यूझीयम पाहण्यास परवानगी मिळणेबाबत....

महोदय.

आमच्या महाविद्यालयातील बी. एस्सी. भाग ३ प्राणीशास्त्र विषयाची शैक्षणिक सहलदि. ०१/०२/२०२० रोजी स. ११.०० वाजता आपल्या विभागास भेट देणार आहे. सदरची सहल आपल्या विभागातील म्यूझीयम पाहणार आहे. तरी आमच्या विध्यार्थ्यांना म्यूझीयम पाहण्यास परवानगी मिळावी हि विनंती.

कळावे.

Meanitted.

Meanitted.

Si. Viogally Lane.

27.01.2020

आपला विश्वास्

क. भा. पाटील महाविद्यालय,

पंढरप्र



Principal Dr. Salunkhe S. T. M.Sc., Ph.D., M. B. A.

"Education through self-help is our motto" Karmaveer

Rayat Shikshan Sanstha's Rajarshi Chhatrapati Shahu College, Kolhapur Tal-Karvir, Dist-Kolhapur 416 003 Phone No.0231-2654658 NAAC accreditation A (CGPA3.07)

E-mail -klpshahucol@gmail.com Website - www.rcshahucollege.in

Estd-1961

Ref. No. /2019-2020 Dt. 22/01/2020

To,

The Head,

Zoology Department,

Shivaji University,

Kolhapur.

Subject: Permission to visit the department

Respected Sir,

With reference to above mentioned subject, our 62 students of B. Sc. I Zoology students are willing to visit the Zoology Department, Shivaji University, Kolhapur on Friday, 24th January 2020. So, I request you to grant permission for this study tour.

Thanking you.

Head of Department

Department of Zoology

Rajarshi Chh. Shahu College



मंजुरी क्र. व दि. S.S.N. 1584/23761 Date 3-1-85 डायस नं. 27340503902

श्री नृसिंह शिक्षण प्रसारक मंडळ सांगवडे, ता. करवीर संचलीत.

न्यू इंग्लिश स्कूल, सांगवडेवाडी

शा. क्र. 23.08.027, सांगवडेवाडी, ता. करवीर, जि. कोल्हापूर. फोन : 0231-2676575

संपर्क : 9921404293, 7744096210

जा. क्र.

R. 22/01/2020

मा - विभाग निपुत्व

पाणीशाका विभाग

ारीवाजी विद्यापीठ, कोन्हापुर

विषय न अपासियाम , जाल, मामक्षारकीय (high power) ने विद्यारकीय

HEIGH

भी पारित N's विद्यान विश्वासी प्रदेश किया किया स्थान स्थान

chand

कामका विश्वार्य

मुख्याध्यापक

न्यू इंग्लिश स्कूल सांगवडंवाडी

Sri. 408est named

Sri. Primamen Patsl.,

Primamen Patsl.,

Please do Se needful.

22.01.2020.

Phone: Office: 08338-220112, Website: www.devchandcollege.org

Principal Cell: 9901573365

email: devchand_college@rediffmail.com principal@devchandcollege.org



Janata Shikshan Mandal's

DEVCHAND COLLEGE

(Jain Religious Minority Institution)

Arjun Nagar, Tal. Kagal, Dist. Kolhapur, Near NIPANI, PIN - 591237 (Affiliated to Shivaji University) 'A' Grade Accredited by NAAC (3rd Cyle)

Jr. Code - 23.07.001

M.C.V.C. Code - 23.07.901

U-Dise No. - 27340806306

Ref. No. :

Date: 28/12/2019

Govt. App. Notification (AFF) Dt. 7-11-1969

Jr. College - HSC -1076/419XX-XII Dt. 6th May 1976

Principal:

Dr. P. M. Herekar

M. Com. M. Phil. Ph. D.

To,
Itead of Zoology
depattment
Shivaji University
Yidhyanagat Kalhapur

Subject: Regarding permission to visit zoology

department, Shivaji University, Kolhapur.

Dear Sir,

With reference to the above subject mentioned we would like to request you that, Department of Zoology of my college has arranged study tour for B.Sc-I and wish to visit your department. Sixty students from B.Sc I, four teaching staff members and one non-teaching staff member will participate in this study tour. Kindly give permission and oblige.

Thanking you.

Yours Sincerely,

30:12.4

Visited Museum of Departmental Setup with Laborentonies Park

SCMT'S CHHATRAPATI SHAHU VIDYALAYA NEW PALACE AREA, KOLHAPUR CBSE SECTION

From.

Date: 19th November, 2019

Chhatrapati Shahu Vidyalaya CBSE New Palace Area Kolhapur.

To,

Department Head Zoology Department, Shivaji University, Kolhapur.

Subject: Application requesting permission to visit Zoology Dept.

Respected Sir,

The students of Chhatrapati ShahuVidyalaya, would like to visit Zoology Department and learn the working of the same. They would also be accompanied by their respective staff. We kindly request you to permit us to visit the same and learn the necessary details. The details of the proposed visit are mentioned at the end. Please communicate the permitted official timings of the visit to us.

In anticipation of a positive reply.

Thanking You

ours truly,

Mrs.Pooja Chopra

(Principal)

ChhatrapatiShahuVidyalaya

Class:9th A+B+C Timing-10.15am

Number of Students: 95 Staff accompanying: 3 + 2 Permitted.



0/w: Shantiniketan/4498/2019-20

Date: 14/10/19

To, HOD, Dept. of Zoology, Seri Biological Lab, Shivaji University, Kolhapur.

Subject: Permission for field visit to Zoology department.

Respected Sir,

We would like to send class VI students of our school to visit the Zoology department, Shivaji University, Kolhapur. The details are mentioned below.

We request you to kindly permit us to visit the department.

This opportunity will enlighten the students.

Thanking you in anticipation.

Date: 17/10/2019.

Day: Thursday.

Time: 10:35 to 12:35. No. of students: 217.

Sincerely yours,

Mrs. Jayshree Jadhav

Principal PRINCIPAL Dr.D.Y.Patil Academy Shantiniketan, Kolhapur. Confirmed!

Received has



श्रीदत्ताबाळ मिशन डिव्हाइन संचलित

श्रीदत्ताबाळ विद्यामंदिर (प्राथमिक) श्रीदत्ताबाळ शिशुविहार (बालवाडी)

७३९/ए, कसबा बावडा, डी. एस. पी. ऑफीस समोर, कोल्हापूर - ४१६ ००३ फोन - २५३८८६२



संदर्भ :

दिनांक:

To,

The head, Department Of Zoology, Shivaji University, Kolhapur.

Sub:- Seeking Permission to visit Department of Zoology, Shivaji University, Kolhapur.

Respected Sir/ Madam,

The Shri Dattabal Vidyamandir (Primary School) , 739/A, front of S.P. Office ,Kasaba Bawada, Kolhapur offering education from 1st to 4th standard. Seeks Permission to 4th standard students to visit your Zoology Department.

As part of the curriculum of 4th standard students scientific study visit is mandatory. As your Zoology Department provides our curriculum scientific demand, so we request you the Zoology department visit. Kindly accord permission to Visit Zoology Department for a team 103 (100 student +3 faculty) on 16 th September 2019.

Your co-ordination in this regard will not only help the cause of education but will also strengthen the children of the nation.

With Regards,

Dattatray V. Patil

Head Master,

Shri Dattabal Vidyamandir.

Contact No.

Dattatray V. Patil - 9145298611 Rohini K. Shevale - 8830742060

Permitted Lutha Lie

मुख्याच्यापक श्री दत्ताबाळ प्राथमिक विद्यामंदिरे कोल्हापुर



उद्यमेन हि सिध्यति: कार्याणि मन्नारथै: Jaywant Pratisthan Humgaon Sanchalit,

Amdar Shashikant Shinde Mahavidyalay, Medha

Tal- Jawali, Dist- Satara

President: Hon. M.L.A. Shashikant J. Shinde

Principal: Dr. M.B. Waghmode

(M.A., M.Phil., Ph.D., G.D.C. & A)

Office: 02378-285645.

Email: accmedha@yahoo.com,

Web: www.assmmedha.edu.in

Date:

Ref. No.: To,

Head

Department of Zoology,

Shivaji University, Kolhapur

Subject:- Regarding visit to Department of Zoology(SUK).....

Respected Sir,

We planned to visit Department of Zoology, Shivaji University, Kolhapur on 6th March 2019 as study tour is required for syllabus. So, please grant us permission to visit your department.

Thanking you,

Yours faithfully,

Department Of Zoology Amdar-Shashikant Shinde Mahavidyalay, Medha.

FWD through,

Amdar Shashikani Shindo Mahashiyalo; Medha, Tal. Jaon, Dist. Salara

Dr. Manne V. S.

Head.

Danartment of Zoology Shiven University, Kolhapur M/s. Halima Ustad

Head Mistress

St. Mary's School, KOLHAPUR

Ph. No.: 521283

500

ST. MARY'S SCHOOL,

Rajarampuri, 13th Lane, Kolhapur - 416 008

Ref. No.: SMS/2018-19/147

To,
The H.O.D
Zoology Department.
Shivaji University,
Kolhapur.

Date: |6|02|19

Subject: Permission to observe Museum of Zoology Department.

Respected Sir,

I, the Principal, Ms. K. J. Ustad of St. Mary's School, Kolhapur, request you to kindly give us permission to observe the Museum of Zoology Department. Now –a- days our syllables includes classification of animals so to give more information about animals to our students we want them to visit your department.

I will be obliged if you grant us the permission

and do the needful.

Thanking you,

9822494450 Usterd madem. Yours faithfully,

Headmaster /Headmistress St. Mary's Secondary School

Rajarampuri, Kolhapur

Permitted & Southa har

P. B. No. 28 Jr. College Code : J.24.05.002 MCVC Code : J.24.05.901

II Tewo Sada Dnyanmaya Pradeep II Shikshan Prasarak Mandal's

Phone/Fax: (02185) 222088 E-mail: smmakj@yahoo.com Website: www.smmakluj.ac.in

Shankarrao Mohite Mahavidyalaya

Akluj 413101Tal. Malshiras Dist. Solapur (M.S.)

NAAC Re-accredited at B grade

(Affiliated to Solapur University)

Founder: Sahakar Maharshi Shankarrao Mohite-Patil
President: Shri. Jaysinh Shankarrao Mohite-Patil (B.A.Hon.)

M.Sc. Ph.D

।। तेवो सदा ज्ञानमय प्रदीप ।। Principal Dr. A. L. Deshmukh

Ref. No.: SMM/

To,
The Department of Zoology
Strivaji University,
koltapur

Sub: Regarding Permission to see the Firm / Institute.

Respected sir,

The bonafide party of this college including 13 students of B.Sc.III and 04 staff is on the excursion on 5th February 2020. Kindly extend your valuable co-operation and oblige. Thanking You.

 Shankarrao Mohite Mahavidyalaya Akkul Pin-413101 Model English Education Society's

SHARDA MAHAVIDYALAYA (Arts & Science) PARBHANI.

ated to Swami Ramanand Teerth Marathwada University, Nanded) Near Govt. Hospital, Subhash Road, Parbhani - 431 401, (Maharashtra) India.

Ph. (02452) 227550 Fax: (02452)227558 Website- www.shardacollege.co.in E-mail-shardacollege 230@yahoo.co.in NAAC 'B' Grade

Mr. Anil Hemraj Jain Secretary

Dr. Wamanrao Jadhav Principal

O.W. SMP/230/2018-19/ 51

Date: 31/01/2019

To.

Head of Department,

Department of Zoology,

Shivaji University, Kolhapur.

Subject: Regarding visit to the Museum

R/Sir,

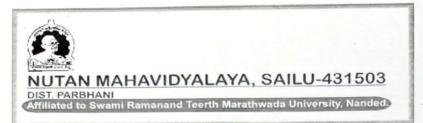
With reference to subject cited above, Sir we have organized a study tour for our B.Sc. students on 06 Feb. 2019. During this study tour, we want to visit our Departmental museum to get knowledge about variety of animals.

So, please kindly permit us and do the necessities for the same.

Thanks;

Enclose: List of students & faculty Svi Deruk bil,
Please Permit.

PRINCIPAL Sharda Mahavidyalaya Parbhani



NMS/EST/2018-2019

Tel:(02451)222004, 223080, (R):222427 E-Mail: principalnutan@rediffmail.com

Date-25/1/2019

NMS/EST/2018-19/209

To,

The Head,

Department of Zoology

Shivaji University

Kolhapur.

Subject- Permission to visit the Department.

Respected Sir,

With reference to the subject noted above, the study tour of B.Sc. Third Year (Biology) students of our college is scheduled to visit your Department & Museum on 29/01/2019. Please, co-operate them.

Total students 23 and Teachers 02

Do the needful and oblige.

Thanking you

Yours

Water Mahavidyateys Cally Dist, Perbhed



रयत शिक्षण संस्थेचे,

कर्मवीर भाऊराव पाटील महाविद्यालय, पंढरपूर

(सोलापूर विद्यापीठ, सोलापूर संलक्षित) (कला, विज्ञान, वाणिज्य आणि व्यवसाय अश्यासक्रम)

नॅक मुल्यांकन श्रेणी 'A+' (CGPA 3.51)

Jr. College Index No. : J 24.08.001

U-DISE No. : 27300810371

यु.जी.सी. कडून सी.पी.ई. दर्जा प्रदान

सोलापूर विद्यापीठ, सोलापूर कडून उत्कृष्ठ महाविद्यालय पुरस्कार

संस्थापक : पदाभूषण डॉ. कर्मवीर भाऊराव पाटील _{डी.लिट.}

जा. क. 1793 18-19 दिनांक : 19 61 2019 प्राचार्य डॉ. अशोकराव एस्. भीईटे, एए.एस्सी. पीएव.डी.

दि. १९/०१/२०१९

मा. विभागप्रमुख, प्राणीशास्त्र विभाग, शिवाजी विद्यापीठ, कोल्हापूर. 41600 4

महोद्य,

आमच्या महाविद्यालयातील बी. एस्सी. भाग दोन (वनस्पतीशास्त्र व प्राणीशास्त्र) वर्गातील १८१ विद्यार्थी व ८ स्टाफ मेंबर्स दि. २३/०१/२०१८ रोजी आपल्या विभागास भेट देणार आहेत. तरी कृपया त्यांना विभागाची माहिती देण्याची व्यवस्था करावी ही विनंती.

कळावे,

आपला विशासू,

कर्मवीर भाऊराच पाटील,

ॣ महाविद्यालय, पंढरपूर.

de

SG ASTELL BANG ORGER FRANCE



Principal Dr. Salunkhe S.T. M.Sc., Ph.D., MBA "Education through self-help is our motto" Karmaveer

Rayat Shikshan Sanstha's Rajarshi Chhatrapati Shahu College, Kolhapur

Tal-Karvir, Dist-Kolhapur 416 003
Phone No.0231-2654658

NAAC Reaccreditation 3rd Cycle A (CGP 3.07)
E-mail - klpshahucol@gmail.com

Website - www.rcshahucollege.in
Estd- 1961

Ref 1450/2020/21 No.

Dt. 1/1/2020

To,

The Head

Department of Zoology

Shivaji University,

Kolhapur.

Sub: Permission to visit Zoology Department.

Respected Sir,

Our college is organizing one week duration Rayat Inspire Programme for 11th std. students to cultivate scientific temper and awareness about research amongst these students. As part of this programme we are organizing study visit to your department on 07/01/2019 between 11.00 am to 2:00pm.

Herewith request you to give permission to visit your department. Thanking you,

Coordinator

Rayat Inspire Programme

Promitted)

R. C. SHAHU COLLEGE KOLHAPUR

Yours faithfully,

Prof. CHOS) S. A. Deshandel

H.O.D Zool.

5. D.S. M. College Palghar 1.10.18

The.

The. H.OD. Dept of Zorlogy

Sub- Permission to vist. Zoology Dept.

Sir

We illu Brof. & students of 5. D.S. M.

College Palghar wants to visit zerlugy Dept.

Around 60 student & Few Prof. visiting dept.

kindly pernit us to visit dept of

Zavlogy on 1.10.18

Thanking You

Dr. S. M. Gaillemad & R.,
Permitted Southon Lar
Dr. Manne V. S.

Dr. Manne V. S.

Head,

Department of Zoology
Shivaji University, Kolhapur

Your's Faithfully S. Deshmon

CMn: S.A. Deshaulch

No. BT/PR18965/BCE/8/1401/2016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Block 2, 6-8th Floors CGO Complex, Lodhi Road, New Delhi- 110 003 Dated: 15.06.2017

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules ,1978 , for the implementation of the project entitled: "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater" for a period of 3 Year 0 Month at a total cost of Rs. 13487800 (Rupees One Crores Thirty Four Lakhs Eighty Seven Thousand Eight Hundred Only) on the terms and conditions detailed here under:-

2 The Project:

2.1 Title: "Integrated eco-electrogenic system for efficient and sustainable treatment of textile wastewater"

2.2 Details of the Investigations:

Project Cordinator

Dr. S Venkata Mohan

Principal Scientist, Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, BEEC Habsiguda,Uppal Road, Hyderabad -500007, Telangana

Principal Investigators:

Dr. S Venkata Mohan

Principal Scientist,
Bioengineering and Environmental Sciences,
CSIR-Indian Institute of Chemical Technology, BEEC
Habsiguda,Uppal Road, Hyderabad -500007, Telangana

Dr. Chirayu Desai

Assistant Professor,
Department of Biological Sciences,
P. D. Patel Institute of Applied Sciences,
Charotar University of Science and Technology
(CHARUSAT) Campus, Changa
Petlad, Anand – 388421, Gujarat

Sp. inf

Prof. Jyoti P Jadhav

Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur – 416004, Maharashtra

CO-PI:

Dr. A Kiran Kumar

Technical Officer, Indian Institute of Chemical Technology, BEEC Habsiguda, Uppad Road, Hyderabad - 500007, Andhra Pradesh

Dr. Seema Amin

Assistant Professor,
Department of Microbiology,
Department of Microbiology, Charotar
University of Science and Technology, Changa
Petlad, Anand – 388421, Gujarat

Prof. Govindwar SP

Principal, Rajarambapu College of Sugar Technology, New, Bahe Naka, Islampur - 415409, Maharashtra

2.3 Objectives:

Institute wise Objectives:

Charotar University of Science and Technology

- 1. Characterization of industrial effluents
- Enrichment and development of bacterial consortia from soil rhizosphere zones of potential dye remediating plants
- 3. Construction, functional characterization and performance enhancement of prepilot/pilot scale phytoreactors augmented with enriched bacterial consortia with ability for dye degradation
- 4. Integration plant-bacterial phytoreactor treating textiles effluents with microbial fuel cells and identification of electrogenic bacterial communities
- 5. Characterization of microbial community dynamics along with the analysis of their functional potential in the plant rhizosphere zones during pre and post-treatment phase, to understand the role of augmented consortia and native microbial species involved in remediation of textile/dye wastewaters

INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY

 To design optimized P-MFC based on appropriate evaluation of electrode materials, electrode assembly design, placement of cathode, distance between electrodes, process parameters optimization, etc

Sp. nf

Page No. [2 / 9]

- 2. To study the functional role of enriched/augmented microbial consortia and plant species variation on the electrogenic activity and treatment efficiency
- To integrate P-MFC with constructed wetland and evaluating performance at scale up operation

Shivaji University

- 1. Construction of lagoons of aquatic plants (60,000L) through nallah till the entry of waste water to river for the biological treatment of textile effluent. The identified free floating aquatics, swamp marshy and submerged rooted plants (viz. Ipomea aquatica, Typha angustifolia, Salvinia molesta, Vetiver zizanioides). Study of toxicity parameters of treated effluent (BOD, COD, TDS, Microbial count, Diversity, Cytogenotoxicity), analysis of dye residues in plant tissues, capacity of wetland, and longevity of plants.
- Study of plant-plant consortium and plant-bacterial synergism for efficient decolorization of textile dyes (Status of biotransformation enzymes, analysis of metabolite and Toxicity analysis).

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **13487800**/-(Rupees One Crores Thirty Four Lakhs Eighty Seven Thousand Eight Hundred Only) as per details given below:

Institute	Year I	Year II	Year III	Total Cost(Rs.)
Charotar University of Science and Technology	3113000	1060000	1103200	5276200
2. INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY	2023800	936800	936800	3897400
3. Shivaji University	2003400	1155400	1155400	4314200
Total (Rs.)	7140200	3152200	3195400	13487800

Sp.nf

Institute wise details are:

Year I	Year II	Year III	Total(Rs.
sity of Science and	d Technology	una la encuesa la	Marie Marie
2053000.00	Section of the Land	THE HOLDEN RES	2053000.0
360000.00	360000.00	403200.00	1123200.0
50000.00	50000.00	50000.00	150000.0
50000.00	50000.00	50000.00	150000.0
300000.00	300000.00	300000.00	900000.0
50000.00	50000.00	50000.00	150000.00
250000.00	250000.00	250000.00	750000.00
3113000.00	1060000.00	1103200.00	5276200.00
у			
798000.00	100 100 100 100 100 100 100 100 100 100	2 1 M/C	798000.00
605400.00	605400.00	605400.00	1816200.00
100000.00	50000.00	50000.00	200000.00
50000.00	50000.00	50000.00	150000.00
300000.00	300000.00	300000.00	900000.00
150000.00	150000.00	150000.00	450000.00
2003400.00	1155400.00	1155400.00	4314200.00
TE OF CHEMICAL	TECHNOLOGY		Part
1037000.00			1037000.00
436800.00	436800.00	436800.00	1310400.00
100000.00	50000.00		200000.00
50000.00		50000.00	150000.00
300000.00	300000.00	300000.00	900000.00
100000.00	100000.00	100000.00	300000.00
2023800.00	936800.00	936800.00	3897400.00
	2053000.00 360000.00 50000.00 50000.00 50000.00 250000.00 3113000.00 436800.00 100000.00 436800.00 100000.00 300000.00 100000.00 436800.00 100000.00 300000.00 100000.00	2053000.00 360000.00 500000.00 50000	2053000.00 360000.00 403200.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 250000.00 250000.00 3113000.00 1060000.00 1103200.00 100000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 100000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 50000.00 3000000.00 300000000 300000000 300000000 300000000

2.6 Equipment:The details of the equipment sanctioned for the implementation of the project at Annexure-I

Generated through eProMIS

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at Annexure-II

3. Head of Account:

The Non-Recurring expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2017-2018
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development, Human Resource Development, Research Resources and Facilities
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2017-2018
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development, Human Resource Development, Research Resources and Facilities
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants-in-aid General

4. Terms & Conditions:

Considering the time bound nature of the project, the project will be monitored by the Task Force / Committee constituted by DBT. In addition, the PI will submit half yearly progress report as per format in Annexure-V.

- 4.1 The other terms and conditions governing this sanction are attached at Annexure- III.
- 4.2A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA by the grantee institutions and its acceptance by DBT. In case of NGO or Private Institution, MOA signed is mandatory first release. A format of the MoA is enclosed in Annexure-IV

Sp. mf

- 4.3The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The Interest so earned will be treated as created to the institute/Agency and shall be adjusted towards further installment of the grant and or at the time of Final Settlement of Accounts.
 - **5.**No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
- **6.**The Director, Charotar University of Science and Technology, Anand, Gujarat and The Director, INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY, Hyderabad, Andhra Pradesh and The Finance and Accounts Officer, Shivaji University, Kolhapur, Maharashtra would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
- **7.**PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-09/2012 dated on 21 Oct 2014. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
- **8.**As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so.
- 9. This issues under the power delegated to this Department and with the concurrence of IFD vide their SAN No.102/IFD/SAN/1092/2017-2018 dated June, 12 2017.

10. This sanction order has been noted at serial no. 37 in the Register of Grants.

To, The Pay & Accounts Officer, Department of Biotechnology, New Delhi – 110 003.

Copy to:

- The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Dr S Venkata Mohan(Project Co-ordinator), Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, Habsiguda, Uppal Road, Hyderabad -500007, Andhra Pradesh
- 3 The Director, Charotar University of Science and Technology, Taluka: Petlad, Anand -388421, Gujarat
- 4 The Director, Indian Institute Of Chemical Technology, Uppal Road, Hyderabad 500007, Telangana
- 5 The Finance and Accounts Officer, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 6 Dr. A Kiran Kumar, Technical Officer, Indian Institute of Chemical Technology Hyderabad, BEEC Habsiguda, Uppad Road,, Hyderabad 500007, Andhra Pradesh
- 7 Dr. Chirayu Desai, Assistant Professor, Department of Biological Sciences, P. D. Patel Institute of Applied Sciences, Charotar University of Science and Technology(CHARUSAT) Campus, Changa Anand 388421, Gujarat
- 8 Dr. S Venkata Mohan, Principal Scientist, Bioengineering and Environmental Sciences, CSIR-Indian Institute of Chemical Technology, BEEC Habsiguda, Uppal Road, Hyderabad -500007, Telangana
- 9 Dr. Seema Amin, Assistant Professor, Department of Microbiology, Charotar University of Science and Technology (CHARUSAT), Changa Petlad, Anand 388421, Gujarat
- 10 Prof. Govindwar SP, Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 11 Prof. Jyoti P Jadhav, Professor, Department of Biochemistry, Shivaji University, Vidyanagar, Kolhapur 416004, Maharashtra
- 12 Cash Section, DBT (2 copies).
- 13 Sanction Folder.
- 14 File Copy.

Annexure -I

Details of the Equipment sanctioned for the implemention of the project titled "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater":

Char	otar University of Science and Technology		tromo v III - ja kija
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	COD, BOD, DO meter and Small Instruments	-	554000.00
2.	Real time-PCR System	1	1499000.00
		Total	2053000.00
Shiva	iji University		STATE OF THE STATE OF
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Land development and construction of lagoons etc. (pipes, water pumps, land cultivation equipments etc.)	S Y of IX	798000.00
		Total	798000.00
INDI	AN INSTITUTE OF CHEMICAL TECHNOLOGY	of a maker	ST. Sentil Settle 10.50
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Soil Electro conductivity probes	1	400000.00
2.	Additional Potentiostat channels for pre-existing Biologic Potentiostat	1	637000.00
		Total	1037000.00

Details of the manpower sanctioned for the implemention of the project titled "Integrated ecoelectrogenic system for efficient and sustainable treatment of textile wastewater":

	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Charotar Unive	ersity of Sc	ience and Techr	nology	6.1	step and
Junior Research Fellow @ Rs. 25,000/- pm + 20% HRA For 1st & 2nd Year Senior Research Fellow @ Rs. 28,000/- pm + 20% HRA For 3rd Year		360000.00	360000.00	403200.00	1123200.00
Total(Rs.)		360000.00	360000.00	403200.00	1123200.00
2. INDIAN INSTI	TUTE OF C	HEMICAL TECHN	IOLOGY		
Senior Research Fellow @28000 + 30 %HRA	TUTE OF C	436800.00	436800.00	436800.00	
Senior Research Fellow @28000 +	TUTE OF C	Left terrow ker		436800.00 436800.00	1310400.00
Senior Research Fellow @28000 + 30 %HRA	1	436800.00	436800.00		1310400.00
Senior Research Fellow @28000 + 30 %HRA Total(Rs.) 3. Shivaji Universe Senior Research Fellow @ Rs.2800/- per month + 20%	1	436800.00	436800.00		1310400.00
Senior Research Fellow @28000 + 30 %HRA Total(Rs.) 3. Shivaji Univers Senior Research Fellow @ Rs.2800/-	sity	436800.00 436800.00	436800.00 436800.00	436800.00	1310400.00

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No.SR/S9/Z-09/2012 dated 21.10.2014.

Protein Portal - The Comprehensive Resource for Protein Databases

Thesis submitted to

Department Of Biotechnology Engineering, Kolhapur

for the award of the degree of

B.E.BIOTECHNOLOGY ENGINEERING

By

Aishwarya S. Rasal

Under the guidance of

Ms. Sayali G. Kulkarni

Department Of Biotechnology Engineering, KIT's College Of Engineering

And Prof. (Dr.) Kailas Sonawane

Shivaji University, Kolhapur



April, 2017

© 2017, Aishwarya S. Rasal, All rights reserved



KIT's College Of Engineering

Department of Biotechnology, Kolhapur

CERTIFICATE

Certified on Saturday, 15thApril 2017, that the thesis titled "Protein Portal - The Comprehensive Resource For Protein Databases" submitted by Ms. Aishwarya S. Rasal to the Department Of Biotechnology, KIT's College Of Engineering, Kolhapur, for the award of the degree "B.E. Biotechnology Engineering" has been accepted by the external examiners, and that the student has successfully defended the thesis in the viva voce examination held today.

GUIDE

HEAD OF DEPT

EXAMINER

PRINCIPAL

APPROVAL OF SUPERVISORS

This is to certify that the thesis titled "Protein Portal - The Comprehensive Resource For Protein Databases" submitted by Ms. Aishwarya Shashikant Rasal to the Department of Biotechnology, KIT's College Of Engineering, Kolhapur for the degree of "B.E. Biotechnology Engineering" is a bona fide record of the research work carried out by her in the Department of Biotechnology, KIT's College Of Engineering, Kolhapur, under my supervision. Ms. Aishwarya Shashikant Rasal has worked on this topic from June2016 till April 2017 and the thesis, in my opinion, is worthy of consideration for the award of the degree "B.E. Biotechnology Engineering". The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree, diploma, or certificate.

Signature:

Guide: Ms. Sayali G Kulkarni

Affiliation: Department Of Biotechnology Engineering

Deullearni

KIT's College Of Engineering, Kolhapur

Date:

Signature:

Guide: Prof. (Dr.) Kailas Sonawane

Affiliation: Department Of Microbiology

Shivaji University, Kolhapur

Date:

R.S. No. 199B/1-3, Gokul Shirgaon, Kolhapur - 416 234.

Maharashtra, INDIA.

Tel. +91 7769001199, 9168781199

Fax +91 231 263 8881 Email: info@kitcoek.in Web: www.kitcoek.in



Accredited 'A' Grade by NAAC with CGPA 3.12

KIT/CEK/ No 1 8 6 3

Date 2 1 NOV 2017

To,

Dr.Kailas D Sonawane

Head of the Department

Microbiology Dept.

Shivaji University

Kolhapur.

Subject: M.E Dissertation Phase work.

Dear Sir,

Kolhapur Institute of Technology's College of Engineering Kolhapur, Maharashtra is affiliated to Shivaji University Kolhapur and approved by AICTE since 1983. Recently the Institute is accredited by NAAC with 'A' grade (ranked among the top 5 colleges applied for NAAC with CGPA 3.12). The Institute is offering degree course B.E. in Biotechnology Engineering since 2002 and post graduate course M.E. (Biochemical Engg. & Biotech) since 2008. As per the university curriculum, M.E. students are required to carry out dissertation work for completion of their M.E. Degree.

I recommend Ms. Rasika R. Ingale for her M.E. Biochemical Engineering and Biotechnology student's project work and will highly appreciate your guidance as her supervisor for project work which will immediately benefit her to carry out the dissertation work for her post-graduation. For the same project work Mr. Atish S Chavan will work as a Guide for her.

Kindly consider this request and accommodate our student as per your protocol.

Looking forward for a continued association with your institute and awaiting for your reply at the earliest.

Thanking you,

Yours sincerely

Dr.Mrs. M.R.Sanandam

Head

Dept. of Biotech Engg.

KIT's College of Engg., Kolhapur.

Kolhapur Kolhapur

- Dr. N. H. Dadat to guide smoent automate 24/11/2017



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za> To: "Dr. K.D. Sonawane" <kds biochem@unishivaji.ac.in> Tue, Dec 11, 2018 at 3:11 PM

Dear Prof Sonawane,

It was nice catching up with you yesterday on phone. I am waiting for the enzyme assays that you are currently carrying out in your lab. I intend to visit your lab for a day this Jan 2019 to take this collaboration further.

I look forward to your email.

All best regards,

Raj

Dr. Rajshekhar Karpoormath, M. Pharm, PhD

Synthetic and Medicinal Chemistry Research Group (SMCRG)

Faculty- Medicinal Chemistry

Dept. of Pharmaceutical Chemistry

Discipline of Pharmaceutical Sciences

College of Health Sciences

UKZN, Westville Campus, Durban, South Africa.

Tel: +27 31 260 7179, Fax: +27 (0) 31 260 7792

Email: karpoormath@ukzn.ac.za

Website: http://smcrg.ukzn.ac.za/Homepage.aspx



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Dr. K.D. Sonawane <kds biochem@unishivaji.ac.in> To: Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za>

Tue, Dec 11, 2018 at 5:09 PM

Dear Prof. Karpoormath,

Good to see your email. Yes, indeed I had nice time talking with you yesterday. We would also like to take our research collaboration further. We perform following enzyme assays in our department; proteases, glycosidase, chitinase, pectinase, cellulase, lipases, aminophosphotransferases, beta-lactamases, lignin peroxidase, polyphenol oxidase. Along with this we also perform anitmicorbial, antifungal, antioxidant, antibiotic resistance studies.

Our lab is well known for bioinformatics studies also such as molecular modeling studies using quantum chemical and molecular mechanics methods, homology modeling, molecular docking, molecular dynamics simulation studies of proteinprotein, protein/DNA-drug interactions, binding energy calculations, etc.

You are welcome in Jan., 2019 in our department. Please convey your date of visit.

Thanks and regards. Prof.K.D. Sonawane

Prof. Kailas Dashrath Sonawane, FMASc.

(NIH Post Doctoral Fellow, USA)

Professor,

Department of Biochemistry,

Head(I/c): Department of Microbiology,

Co-ordinator: PG Diploma in Bioinformatics

Shivaji University, Kolhapur-416004

Maharashtra, India

Website: www.unishivaji.ac.in

Phone: 9881320719 - Mobile

Email:kds biochem@unishivaji.ac.in; kdsonawane19@gmail.com

[Quoted text hidden]



Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Collaboration

Rajshekhar Karpoormath < Karpoormath@ukzn.ac.za> To: "Dr. K.D. Sonawane" < kds_biochem@unishivaji.ac.in>

Tue, Dec 11, 2018 at 8:11 PM

Dear Prof Sonawane,

Thank you for your email. I am really interested in utilizing your expertise in computational and various enzyme assay studies. My tentative dates of the visit to your lab are 21st and 22nd Jan 2019.

Kindly send me an official invitation on your letterhead.

Thank you

All best regards,

Raj

Dr. Rajshekhar Karpoormath, M. Pharm, PhD

Synthetic and Medicinal Chemistry Research Group (SMCRG)

Faculty- Medicinal Chemistry

Dept. of Pharmaceutical Chemistry

Discipline of Pharmaceutical Sciences

College of Health Sciences

UKZN, Westville Campus, Durban, South Africa.

Tel: +27 31 260 7179, Fax: +27 (0) 31 260 7792

Email: karpoormath@ukzn.ac.za

Website: http://smcrg.ukzn.ac.za/Homepage.aspx

From: Dr. K.D. Sonawane <kds_biochem@unishivaji.ac.in>

Sent: Tuesday, December 11, 2018 1:39:06 PM

To: Rajshekhar Karpoormath **Subject:** Re: Collaboration

[Quoted text hidden]

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the Shivaji University. Finally, the recipient should check this email and any attachments for the presence of viruses. Shivaji University accepts no liability for any damage caused by any virus transmitted by this email.

अमेरी सर

Visiti Toips-APhysics

हात. विज्ञान प्राण राम्य कार यांनाता शिक्षण प्रसार शिक्षणमहर्षे डॉ सापुजी साळ्क श्री स्वासी विवेकानद शिक्षण संस्था, कोल्हापुरचे

ताल वहादूर शास्त्री कॉलेज

ऑफ आदेस, सायन्स ऑण्ड कॉमर्स, सातास.

वार, मतन्त्रार भेत, स्थानारा - ४१५००२ (मतासाम्य) फान (०२१६२) २३७९८६, कॅक्स . २३८०५०

I Affiliated to Shivaji University, Kolhapur I NAAC Reaccredited. Grade 'B' CGPA (2.86) I

संस्थापक अध्यक्ष सचिव प्राधार्य संस्थापक वा अध्यक्ष सचिव प्राधार्य शिक्षणपद्भी ते. बादना साकृत्य मा अध्यक्षमान सान्त्र्य ११, २० शृथाणी गाउड डॉ. ४५२ व्ही शावच्य श्री म बी टी. श्री तिट.

To

The Head,

रादर्भ क्र एलदीएरासी

Department of Physics,

Shivaji University Kolhapur,

Kolhapur.

Subject :- Permission to visit at Physics Department

Respected Sir,

We have arranged our educational tour of B.Sc.II & III students of our college to visit Physics Department on 15^{th} February 2016 . This educational tour is a part of curriculum of Shivaji University , Kolhapur.

There will be about 42 students and 6 staff members from our college. We cordially request you to allow visiting your Physics Department.

Thanking you.

Dr. N. L. Tarw

Head

Dept. of Physics

Yours faithfully,

(Dr. R. V. Shejwal) PRINCIPAL

Lal BahinduraShastri College

SATARA

HEAD

Department of Physics (Sr.) Lal Bahadur Shastri College, SATARA



Saniav Ghodawat University, Kolhapur

Established as a State Private University under Govt. of Maharashtra Act No. XL dated 3rd May 2017

Empowering Lives Globally

out wortho - sau/sci/pec/743

Date: 27/12/2017

To, The Head, Department of Physics, Shivaji University, Kolhapur.

Subject: Permisssion for visiting Physics Department laboratory and PIFC.

Respected Sir,

In the Academic Year 2017-18, under School of Science, Department of Physics, Mathematics and Chemistry are established in Sanjay Ghodawat University, Kolhapur (Atigre). There are total ten students in the Department of Physics, fifteen students in the Department of Chemistry and two students in the Department of Mathematics. As a part of academic activity as well as in order make students aware of the various charactarization techniques used in Physics, Material Sciences and other specializations, we wish to conduct laboratory and PIFC visit to the Department of Physics, Shivaji University, Kolhapur on 2nd January 2017. So this is kind request to you to kindly consider the application and permit us for the visit.

1.2.12.17 1.2. 54 vort)

Thanking you in anticipation.

Yours faithfully

HOD, Department of Physics

SGU, Kolhapur.

make the alla at 11.00. am.

A/P - Atigre - 416118, Tal.: Hatkanangale, Dist.: Kolhapur, Maharashtra, India.

mail: vc@sanjayghodawatuniversity.in Website: www.sanjayghodawatuniversity.in



संहती कार्यसाधिका । शिलं परं भूषणम

Shetkari Shikshan Prasarak Mandal's

KRISHNA MAHAVIDYALAYA, RETHARE BK.

Shivnagar, Tal. Karad, Dist. Satara, 415108 (M.S.)

Email: kmr_sspm@yahoo.co.in Website: www.krishnamahavidyalaya.com

NAAC 'B+' Grade (CGPA 2.65)

Principal: Dr. Salunkhe C. B., M.Sc., Ph.D.

Ref. No.: KMR/ ST-125/12017-18

Founder: Hon, Jaywantrao Bhosale

Date: 2/2/2018

To The Head, Department of Physics, Shivaji University, Kolhpaur

Subject: Request for permission to visit Physics Instrumentation facility centre (PIFC).

Respected Sir,

With reference to the subject mentioned above, our students of B.Sc.III year (Physics) would like to visit Physics Instrumentation facility centre (PIFC) on 10/02/2018. The said visit will be beneficial for students to upgrade their knowledge and inculcate the research culture among them.

Herewith I kindly request you to allow our students to visit PIFC, Shivaji University, Kolhapur.

Thanking You

Yours faithfully

(Dr. & B. Salunkhe)

Dr. C. B. Salunkhe PRINCIPAL (I/C) KRISHNA MAHAVIDYÁLAYA RETHARE (EK.), TAL. KARAD

Mon Pie.

Department of rhysics Shwaji University



''ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षणप्रसार'' –शिक्षणमहर्षी डॉ. बापूजी साळुंखे Shri Swami Vivekanand Shikshan Sanstha, Kolhapur's

Lal Bahadur Shastri College of Arts, Science & Commerce, Satara

■ 17, Malhar Peth, Satara-415002 (Maharashtra) ■ Ph. (02162) 237986,Fax : 238050

■ lbs_satara@yahoo.com
■ www.lbscollegesatara.edu.in

■ Affilliated to Shivaji University, Kolhapur
■ NAAC Reaccredited- Grade 'B' CGPA (2.86)

Establishment June, 1967 Jr.College Reg. No. HSC/1077/31029/XIHSC/Dt.- 4th May 1977.

COME TAX NO PNELCO3853D Professional Tax R.C.No. 27245111910P, (H.S.C. Board No. 21.10.005.

Dr. Rajendra Shejwal

Founder Shikshanmarshi Dr. Bapuji Salunkhe

Hon. Chandrakant (Dada) Patil Revenue Minister, Maharashtra State

Chairman Hon. Abhaykumar Salunkhe

Hon.Mrs.Shubhangi Gavade

Date:

Ref. No. LBSC/

Date: 29/12/2018

To. The Head Department of Physics Shivaji University Kolhapur

Respected Sir,

The students of BSc.III Physics of Lal Bahadhur Shastri College of Arts, Science & Commerce, Satara want to visit your prestigious department on 29-12-2018.

Kindly allow us to visit your department.

Thanking you.

Do Tarwal Br. V. J. Fulari

Prof. & Head.

Department of Physics Shivaji University

Kolhapur

Your Faithfully,

(Dr. R.V. Shejwal)

Principal,

Lal Bahadur Shastri College of Arts, Science & Commerce

Salara

|| Dnyan - seva - tyag ||

Shri Vyanknath Shikshan Prasarak Mandal's



Shri Yashwantrao Patil Science College Solankur

TAL. RADHANAGARI, DIST. KOLHAPUR - 416212 PHONE - 02321 231561 Email ypsmsolankur@gmail.com

Affiliated to Shivaji University, Kolhapur

To.

The Head.

Department of Physics.

Shivaji University, Kolhapur.

Subject: Permission for Departmental visit.

Sir,

The students of B. Sc. III class from Department of Physics, Shri Yashwantrao Patil Science College, Solankur willing to visit Department of Physics, Shivaji University, Kolhapur for study tour purpose on 11th Jan. 2018. Kindly permit the same.

Thanking you.

Yours Faithfully,

PRINCIPAL

Shri. Yashwantrao Patil Science Mahavidyalaya

Science Manavoyalaya Solankur, Tal Radhanagari, Dist.Kolhapur.

Dr. V. J. Fular

Prof. & Head, Department of Physics

Shivaji University Kolhapur



KARMAVEER BH MAHAVIDYALAYA, PANDHARPUR

(Affiliated to Solapur University, Solapur)

(Arts, Commerce, Science & H.S.C. Vocational)

Jr. College Index No. : J 24.08.001

U-DISE No.: 27300810371

Third Cycle Accredited by NAAC: Grade 'A+' (CGPA 3.51)

College with Potential for Excellence Status Awarded by U.G.C. Best College Status Awarded by Solapur University, Solapur

Founder: Padmabhushan Dr. Karmaveer Bhaurao Patil, D.Lit.

Ref. No. 1746 17-18

Est. 1960

12-2-2018 Date:

Prin. S. N. Gosavi M.A., B.Ed., NET/SET

To. The Head Department of Physics, Shivaji University, Kolhapur.

Subject: About visit to Physics Department.....

Respected Sir,

Forty Eight students of B.Sc.III (Physics) and four staff members of K. B.

P. Mahavidhayalaya, Pandharpur are going to visit the sophisticated research laboratories in your department on 14/02/2018 as a part of study tour.

So, I kindly request you to give the permission for the same.

Thanking You.

Yours faithfully

Tour Incharge

1 / Hysics

Kolhapur

alunthe

Shivapichniversity

Department of Physics

Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur.

Karmaveer Path, PANDHARPUR - 413304, Dist. Solapur (MAH) 🕾 Office : (02186) 223104, Prin. Resi. : (02186) 223216

Date: 16.02.18

To
The Head of Department,
Science Department,
Shivaji University,
Kolhapur

Subject: Seek permission for a field visit to the Physics dept and Botanical Garden.

Dear Sir/ Madam,

With the backdrop of the National Science day, the Sanjeevan International School is celebrating the **Science week**. With the objective of enhancing our students' knowledge, we wish to bring them to the Physics dept and the Botanical Garden on 21 Feb, 2018 at 10:30 a.m.

We humbly request you to grant us the permission for the aforesaid visits for the students of Grade 7, 8 and 9. The number of students would be 65 along with 3 Teachers and two ancillary staff. Also request you to provide us with your staff member who will brief our students.

Hoping for a positive response.

Thanking in anticipation

Warm regards

Principal Sanjeevan International School.



Permission to visit at Physics department of your university

PHYSICS DEPARTMENT <phydept1975@gmail.com> To: physics@unishivaji.ac.in

Tue, Jan 14, 2020 at 8:24 PM

Respected Sir,

55 students and 5 faculty members would like to visit your department under Educational tour activity on 24 Jan. 2020.

You are requested kindly grand permission to visit, if possible. Thanking you.

Yours faithfully, Kapase V .V. Assistant Professor, Department of Physics, New Arts, Commerce and Science college Ahmednagar



MARATHA VIDYA PRASARAK SAMAJ'S

G.M.D. ARTS, B.W. COMMERCE & SCIENCE COLLEGE, SCIMAR

Tal. Sinnar, Dist. Nashik - 422 103 (M.S.) India.

Affiliated to Savitribai Phule Pune University (LD. No. PU NS/ASC/013/1969)

– Junior College Index No. J.13.13 001

AISHE-C-41292

Best College Award by Savitribai Phule Pune University 2012-13

Ref. No.: 1317/2019-20

Date: 06/0/ 12020

To.

The Registrar.

Shivaji University. Kolhapur

Kind Attention: Dr. M.K. Bhanarkar. Dept. of Electronics, Shivaji University, Kolhapur

Subject: - Regarding the permission of educational visit of B.Sc. Physics & Mathematics Students of our College....

Respected Sir,

As per the guidelines given in syllabus by BOD Physics, Savitribai Phule Pune University, Pune and to enrich the departmental curriculum. Department of Physics & Mathematics of our college is planning educational visit of B.Sc. Physics & Mathematics (Students-40 and Staff-5) on 11/01/2020 at your Shivaji University, Kolhapur.

So Kindly grant the permission of visit to the following department of your university.

- 1. Department of Physics
- 2. Department of Electronics
- 3. Botanical Garden

With Regards.



Dr. Dilip B. Shinde
PRINCIPAL
G M.D.Arts, B.W.Commerce and
Science College, Sinnar, Dist Nashik





Educational Tour visit

HARIBHAU DHAGE <haribhau210@gmail.com>
To: physics@unishivaji.ac.in

Thu, Feb 6, 2020 at 2:37 AM

Respected Dr Patil Sir H O D Dept of physics shivaji college Udgir want to visit your physics department during arranged tour of B. Sc. T. Y. Students on 09. 02. 2020 Please permit us Estd. -1968



Principal, Dr. L. D. Kadam M.Sc., Ph.D.

Ref. No. AHH

"Education Through self-help is our Motto" - Karmaveer Rayat Shikshan Sanstha's

Arts, Science and Commerce College, Ramanandnagar (Burli)

Kirloskarwadi, Pin-416 308 Tal-Palus, Dist-Sangli

Founder -Dr. Karmveer Bhaurao Patil, D.Litt.

NAAC Accreditation - 'A'

E-mail: asec rnagar@ymail.com

/ 2019 - 2020

Date. 07 /01 /2020

Fax

Affiliated to Shivaji

University, Kolhapur Jr. College

Index No. - 22.07.001

STD: 02346)

Office: 222035

Resi. : 222009

: 222035

To Head, Department of Physics, Shivaji University,

Kolhapur-416004

Subject: - Regarding permission to visit physics department on 8th January 2020.

Respected Sir,

As a part of B.Sc. – III Physics syllabus, we want to organize a one day study tour. We wish to see M.Sc. part I, II laboratories and physics instrumentation facility centre at the department. So I request you to grant the permission for the same. Please accept the request and oblique. We hope to receive a positive reply from you about date.

Thanking you

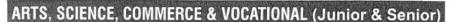
Yours Faithfully,

Arts, Science & Commerce College. Ramanai da , est (Surlis रयत शिक्षण संस्था,सातारा

SADGURU GADAGE MAHARAJ COLLEGE, KARAD

VIDYANAGAR, Pin - 415 124, Dist. Satara (M.S.) INDIA P.O. Box No.3 **Ph.** Office: (02164) 271346 Resi. (02164) 271794 **Fax.** (02164) 271346

Website: www.sgm.edu.in E-mail: sgmkarad@yahoo.com



■ Jr. College No. j.21.02.003 ■ (Affiliated to Shivaji University, Kolhapur) ■ Accredited A⁺ with CGPA 3.63 by NAAC • ISO 9001: 2015 Certified College

Principal: Dr. Mohan Rajmane M.Sc., Ph.D.

Ref. No. 2240 19-26

Date : 10/01/2020

To,
The Head,
Department of Physics.
Shivaji University,Khanapur.

Sub.: Regarding study visit to your research laboratories & PIFC Centre.

Respected Sir,

The Department of Physics, S. G. M. College, Karad has organized the study tour of students from B.Sc.-III and M.Sc.-I Class on Saturday, 11th Jan 2020. The students are interested to visit the different special research laboratories & PIFC Centre of your department to take the information about some experiments of M.Sc.-I syllabi and instruments related to characterization techniques available in your PIFC Centre.

We, therefore, kindly request you to allow the permission and arrange the same.

Hoping a favorable response and cooperation from you.

Thanking you,

Your Sincerely

S.G.M College Karad

Ap/



Linkages

Department of Physics

Shivaji University, Kolhapur-416004, M.S., India

Dr. N. L. Tarwal

M.Sc., SET, Ph.D., Post doc (S.Korea)

Assistant Professor



Mobile No- +91 7057555960

Email id- nlt.phy@unishivaji.ac.in

Date: 06.12.2019

Letter of Invitation

To

Dr. K. Suresh Chary, Scientist, Ceramic Division, Naval Materials Research Laboratory, Defence Research and Development Organisation (DRDO), PO Anand Nagar, Ambernath (East)-421506, Mumbai.

Respected Dr. Chary Sir,

On behalf of Department of Physics, Shivaji University, Kolhapur, India, I am delighted to invite you for our future research collaborative meeting from December 21, 2019 to December 23, 2019. Please confirm your schedule, so that we can arrange the accommodation.

We look forward to your arrival and believed that your participation in our collaborative research activities will be rewarding both for you and our research team as a whole.

Thanking you,

Yours Sincerely,

(Dr. N. L. Tarwal)

Name -



Regarding the Collaboration

Dr. N.L. Tarwal tarwalnilesh@gmail.com To: akchau@barc.gov.in Mon, Apr 2, 2018 at 5:05 AM

Respected Dr. A. K. Chauhan,

Myself Dr. N.L. Tarwal, working as a Assistant Professor at Department of Physics, Shivaji University, Kolhapur.

Since 2006 I am working in the field of Materials Science especially in the field of Nanomaterials for various applications such as Solar cells, Gas sensors, Electrochromism, Supercapacitor, etc.

I am very much interested for the collaborative research work with you for the following project entitled "Development of High Efficiency Lead-Free Organic-Inorganic Pervoskite Solar Cells,".

Reference: https://brns.res.in/content_details.php?content_id=54

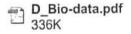
Please find herewith attached copy of my CV for your ready reference.

Waiting for your reply.

Thanking you. Yours faithfully,

Dr. N. L. Tarwal, Assistant Professor, Department of Physics, Shivaji University, Kolhapur-416004 Maharashtra, India.

Cell Number: +91 7057555960 +91 8856810351





Regarding the Collaboration

Dr. N.L. Tarwal <arwalnilesh@gmail.com>
To: manmeet@barc.gov.in

Mon, Apr 2, 2018 at 4:59 AM

Respected Sir/Madam,

Myself Dr. N.L.Tarwal, working as a Assistant Professor at Department of Physics, Shivaji University, Kolhapur.

Since 2006 I am working in the field of Materials Science especially in the field of Nanomaterials for various applications such as Solar cells, Gas sensors, Electrochromism, Supercapacitor, etc.

I am very much interested for the collaborative research work with you for the following project entitled "Ammonia (NH3) sensor based on metal oxide thin films and nanostructures".

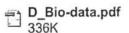
Reference: https://brns.res.in/content_details.php?content_id=54

Please find herewith attached copy of my CV for your ready reference.

Waiting for your reply.

Thanking you.
Yours faithfully,
Dr. N. L. Tarwal,
Assistant Professor,
Department of Physics,
Shivaji University, Kolhapur-416004
Maharashtra, India.

Cell Number: +91 7057555960 +91 8856810351



Assistant Professor,

Dr. N.L. Tarwal,

Department of Physics,

Shivaji University Kolhapur.

Respected sir,

We are studying at Rajarshi Chhatrapati Shahu College, Kolhapur at Msc-II.

Request that we get permission for project under your guidance.

Project Guide -A.s. Prabhawalikar.

AP

Sincerely,

Dhumal Nilam Pradip Acoluma

Kharade Poonam Gulabrao Pravade

Pune District Education Association's

Estd.: 1989

Baburaoji Gholap College



Arts, Science & Commerce

NAAC Reaccredition "B" Grade

Outward No : BGCS/202/3/2018-19 Principal Dr. Balkrishna Zaware

Date: 24/12/2018

To,

The Head,

Department of Physics,

Shivaji University, Kolhapur.

Maharashtra, India.

Subject: Request for Permission to carry out project work in the Department of Physics.

Respected Sir,

Our M.Sc. Physics Part II student, Mr. Sawant Digambar Shivaji (Roll No. 5454, Enrollment no.- 0152904358) is willing to complete a project on broad subject 'Material Science'. Please allow him to perform laboratory work in the Department under the guidance of Dr. N. L Tarwal. I assure you that he will be abide by all rules and regulations of Shivaji University.

Seeking your kind corporation.

Thanking you,

Yours faithfully.

Dr. Balkrushna Zaware

Principal.

Baburkeji Gholay Golfego Sangvi, Pune - 411 027. To.

Head of Department Of Physics,

Shivaji University Kolhapur.

Subject:

Allowed to Project Work in your Department.

Respected sir,

The Post Graduate Department of Chemistry Rajarshi Chhatrapati Shahu College Kolhapur and Post Graduate Department of Physics Shivaji University Kolhapur.

We are studying Rajarshi Chhatrapati Shahu College Kolhapur at Msc-II.

Request for permission to work under the guidance of Assistant Professor Dr. N.L. Tarwal Sir, we are working on the sub- To study the absorption of natural dye solution for prospect of application as sensitizer in dye sensitized solar cell.

We need your permission to work the project.

Respectfully,

Dhumal Nilam Pradip (Polymer)

Kharade Poonam Gulabrao Pharaok

Head of Department

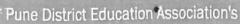
S.V. Patil

Department of Chemistry

Project Guide -

A.S. Prabhawalikar

Dep.





Baburaoji Gholap College Arts, Science & Commerce

Sangvi, Pune - 411027.

(Maharashtra)

Ph.: 020-27280204 Fax: 020-27281722 | WEB : www.bgc.pdeapune.org

Email: principal@bgc.pdeapune.org

bgc_sangvi@pdeapune.org

Affiliated to Savitribai Phule Pune University (Id. No. PU/PN/ASC/073/1989) (Maharashtra)

NAAC Reaccredition "B+" Grade

Outward No: BGCS/ 254/9/2018-19

Date:

Date-21/02/2019

President Aiit Pawar

The Head.

Department of Physics,

Vice President Rajendra Ghadge

Shivaji University, Kolhapur.

Maharashtra, India.

Subject: Regarding permission to carry out project work in the Department of Hon, Secretary Adv. Sandeep KadamPhysics.

Respected Sir,

Adv. Mohanrao Deshmu@ur M.Sc. Physics Part II student, Miss. Rasal Ashlesha Atmaram (Roll No. 5464, Enrollment no.- 0152904355) is willing to complete a project on broad subject 'Material Science'. Please allow her to perform laboratory work in the Department under the guidance of Dr. N. L Tarwal. I assure you that she will be abide by all Dy. Secretary rules and regulations of Shivaji University.

L. M. Pawar

Seeking your kind corporation.

Principal

Thanking you,

Dr. Balkrishna Zaware

Yours faithfully.

Dr. Balkrushna Zaware

Principal.

PRINCIPAL

Baburaoji Gholap College Sangvi, Puns - 411 027.

Baburaoji Gholap College



Arts, Science & Commerce

Sangvi, Pune - 411 027. (Maharashtra) Ph.: 020-27280204 Fax: 020-27281722

● E-mail: principal@bgc.pdeapune.org, bgc_sangvi@pdeapune.org ● Website: www.bgc.pdeapune.org

Affiliated to University of Pune (Id. No. PU/PN/ASC/073/1989) (Maharashtra)

* NAAC Reaccredition "B" Grade *

Outward No: BGCS/ 202/2/2018-19 Principal Dr. Balkrishna Zaware

Date: 24/12/2018

To,

Dr.N.L.Tarwal,

Assistant Professor,

Shivaji University Kolhapur

Subject: Request for Permission to carry out project work in the Department of Physics.

Respected Sir,

Our M.Sc. Physics Part II student, Mr. Sawant Digambar Shivaji (Roll No. 5454, Enrollment no.- 0152904358) is willing to complete a project on broad subject 'Material Science'. Please allow him to perform laboratory work in the Department under your guidance. I assure you that he will be abide by all rules and regulations of Shivaji University.

Seeking your kind corporation.

Thanking you,

Yours faithfully.

Dr. Balkrushna Zaware

Principal.

PRINCIPAL

Baburaoji Gholap College Sangvi, Pune - 411 027.



Krantiveer Vasantrao Narayanrao Naik Shikshan Prasarak Sanstha's

ARTS, COMMERCE & SCIENCE COLLEGE, NASHIK

Dongare Vastigruh Parisar, Canada Corner, Nashik-422002. (M.S.) Ph. (O) (0253) 2576692, (Jr.) 2318692

Affiliated to University of Pune, Sr. College (ID No. PU/NS/ASC/53/1998) Jr. College (No. J-13-17-027)

Email: vnnaik_col@rediffmail.com, vnnaikcollege@gmail.com Visit us: www.kvnacs.in Fax No. (0253) 2576692

NAAC Re-accredited "B" Grade

Dr. S. P. Badgujar Principal

To,

Dr N.L.Tarwal,

Assistant professor,

Shivaji University,

Kolhapur

Subject: Request for permission to carry out project work in the Dept. of Physics.

Respected sir,

Our M.Sc. Physics part II student Miss. Priyanka Sukdev Dighe, (Roll no-06, PRN No-PH17200727) She is willing to complete her project work on subject "Material Science"

Kindly allow her to performed laboratory work in the department under your guidance. I assured you that she will be abide by all rules and regulations of Shivaji University.

Seeking your kind corporation

Thanking you

Yours faithfully

Dr. V.G. Wagh

Head Dept. of Physics Principal

Dr. S.P. Badgujar

/20

Date:

Ref. No. KVNN/ASC/

Principal
Kr. V. N. Naik Shikshan Prasarak Sanstha's
Arts, Commerce & Science Colleg
Canada Corner, Nashik

Ref no/SGU/R&D/CHEM/2018-19/782_

10th December 2018

To Dr. G.S. Rashinkar, Department of Chemistry, Shivaji University, Kolhapur

Respected Sir,

I am writing this letter for requesting you to provide help and support to my M.Sc-II year students for their project work. It has been observed that this research needs some organic reaction study. So I believe that a reference from your potential support will greatly benefit students in terms of better outcome of the project. So, I expect that you will provide help and support and this interdisciplinary research work can be extend further in fruitful collaboration.

We look forward to your kind cooperation and association.

Parlavi &

Dr. Pallavi Bhange Assistant Professor Sanjay Ghodawat University, OLHAPII

Dr.B.M.Hirdekar

Registrar

of permission of Read of Permission of Permission of Permission of Permission of Permission of Permission of Spashall statement of Chemistra.

Jalvarsity, Kaith

A/P - Atigre - 416118, Tal.: Hatkanangale, Dist.: Kolhapur, Maharashtra, India. one: 0230 - 2463700, e - mail: vc@sanjayghodawatuniversity.in Website: www.sanjayghodawatuniversity.in

Department of Chemistry Shivaii University, Kothapur-416004

SOME CONTRIBUTION TO NANOELECTRONIC LOGIC AND MEMORY

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY KOLHAPUR

FOR THE DEGREE OF

M.Sc.

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE

MR. PRITAM P. CHOUGULE

UNDER THE GUIDANCE OF

DR. M. N. LUWANG

M.Sc., Ph.D.

AND

UNDER THE CO-GUIDANCE OF

DR. T. D. DONGALE

M.Sc., Ph.D.

COMPUTATIONAL ELECTRONICS AND NANOSCIENCE RESEARCH LABORATORY, SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY SHIVAJI UNIVERSITY, KOLHAPUR

(2016)

"IN-SITU EXTRACELLULAR FUNGAL SYNTHESIS OF METAL NANOPARTICLES"

Thesis submitted to school of Nanoscience and Technology,

Shivaji University, Kolhapur

For the degree of

Masters of Science in Nanoscience and Technology

By

Miss. Sangar Madhuri Anil

Under The Guidance Of

Mrs. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory,

Pune - 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nanoscience & Technology,

Shivaji University, Kolhapur.

2016-2017

Study of Organic Perovskite Materials for Solar Cells

A Dissertation of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR

For the Degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Mr. ROHAN PASTE

UNDER THE GUIDANCE OF

Dr. Kartick Tarafder,

Assistant Professor,
Department of Physics,
National Institute of Technology Karnataka
Surathkal, Mangaluru-575025
Karnataka, India.

And

UNDER THE CO-GUIDANCE OF

Dr. P.S. Patil,

Coordinator,

School of Nanoscience and Technology, Shivaji University Kolhapur- 416004, Maharashtra- India.

(2017)





Study of Thermally Synthesized Graphitic Carbon Nitride Based Nanocomposite for Photocatalytic Application

A Project Report Submitted To

SHIVAJI UNIVERSITY, KOLHAPUR

For the Partial Fulfillment

of

Degree of Master of Science

In

Nanoscience and Technology

Under The Faculty Of Science

By

Miss. Vidya Vasant Alman

B. Sc. (Nanoscience and Technology)

Under The Guidance of

Dr. S. P. Gokhale

Principal Scientist

Physical and Materials Chemistry Division

CSIR-National Chemical Laboratory

Pune-411008

SCHOOL OF NANOSCIENCE AND TECHNOLGY, SHIVAJI UNIVERSITY, KOLHAPUR (INDIA) 2017-2018

A Synopsis of the Proposed Research Project Submitted to School Of Nanoscience and biotechnology

Title

SYNTHESIS OF BIOCOMPATIBLE AND BIODEGRADABLE POLYMERSOME FOR TARGETED DRUG DELEVERY

BY

JYOTI TANAJI THANEKAR.

M. Sc.

NANOSCIENCE

(Faculty of Science)

Under the Guidance of

Dr. Baijayantimala Garnaik

(Sr. Pr. Scientist)
PSE DIVISION
CSIR – NCL, PUNE

Co-Guide

Dr. K. K. Sharma

(Assistant Professor)
SHIVAJI UNIVERSITY, KOLHAPUR-416004
(2017)

FUNGAL AND ENZYMATIC SYNTHESIS OF NANOPARTICLES, CHARACTERIZATION AND APPLICATIONS

Thesis of the proposed research project submitted to

SCHOOL OF NANOSCIENCE AND TECHNOLOGY

For the degree of

Master of Science

IN

NANOSCIENCE AND TECHNOLOGY

Under the Faculty of Science

BY

Miss. Priteeka Pradip Suryawanshi

M.Sc. II (Post Graduate Student)

Under The Guidance of

Dr. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory, Pune 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nano science and Technology, Shivaji University, Kolhapur, 2017-2018





Synthesis and Characterization of UV Curable Hybrid Nanocomposites and their Applications in Coatings

A dissertation submitted to

Shivaji University, Kolhapur

For the degree of

MASTER OF SCIENCE

In

Nanoscience and Technology

Under the faculty of **Science and Technology**

By

Miss. Pranita Prakash Magadum

Under the guidance of

Dr. P. P. Wadgonkar

Dr. K. K. Sharma

(Chief Scientist)

(M. Sc., Ph.D.)

Guide

Co-guide

School of Nanoscience & Technology, Shivaji University Vidyanagar, Kolhapur- 416004

&

Laboratory CSIR-National Chemical (NCL), Pune-411008

May 2017-18

PHOTOCATALYSIS FOR WATER SPLITTING

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

MAHESHWARI M. KHOT

UNDER THE GUIDANCE OF

<u>Dr. C.S.GOPINATH</u>

Senior Principal Scientist

SCHOOL OF NANOSCIENCE AND TECHNOLOGY,

SHIVAJI UNIVERSITY, VIDYANAGAR

KOLHAPUR – 416 004

MAHARASHTRA, INDIA.

CERTIFICATE

This is to certify that the dissertation entitled, "Photocatalysis For Water Splitting" which is being submitted herewith for the award of the degree of Master of Science in Nanoscience and Technology of Shivaji University, Kolhapur is the result of the original research work completed by Ms. Maheshwari. M. Khot under my supervision and guidance and to the best of my knowledge and belief, the work embodied in this dissertation has not formed earlier the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Place:	Kolha	pur
--------	-------	-----

Date:

Signature of the Research Guide

Signature of the Research Co-guide

Dr. C. S. Gopinath

Dr. K. K. Sharma

CSIR-National Chemical Laboratory,

School of Nanoscience and Technology,

Pune.

Shivaji University, Kolhapur.

Signature of Coordinator

Prof. (Dr.) P. S. Patil.

School of Nanoscience and Technology,

Shivaji University, Kolhapur.

DECLARATION

I hereby declare that the dissertation entitled "*Photocatalysis For Water Splitting*" completed and written by me has not previously formed the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Further I declare that I have not violated any of the provisions under the acts of Copyright/Privacy/ Cyber/IPR etc. amended from time to time.

Place: Kolhapur Ms. Maheshwari. M. Khot

Date: Research Student

ACKNOWLEDGEMENTS

It gives me great pleasure to express my deep sense of gratitude towards my guide and mentor, **Prof** (**Dr.**) **C. S. Gopinath**. Working under his guidance is one of the most rewarding experiences in my life only because of his generous attitude, constant encouragement, constructive criticism, erudite guidance and unending interest.

I am very much thankful to CSIR- National Chemical Laboratory, Pune for providing me the necessary facilities during my project.

I am very much thankful to **Prof.** (**Dr.**) **P. S.Patil** Head of Department of School of Nanoscience and Technology, Shivaji University, Kolhapur.

I gratefully acknowledge to my Co-guide Prof (Mr.) K. K. Sharma. Also Prof (Ms.). S. Jagadale for their constant support during my research work.

I must thank to all my school and college teachers, because of their valuable guidance. I could shape up my carrier in right way and able to see my dreams coming true.

I am thankful to all labmates for constant encouragement and moral support, Ms. Pradnya, Ms. Ruchi, Ms. Layana, Ms. Kshirodra, Dr.Naresh, Mr. Manoj, Mr.. Prabhakar, Mr. Nitin, Mr. Himanshu, Mr. Ravi for their help. My special thanks to Ms. Pradnya Bharad for her cooperation and friendly advice received during the progress of this project.

Especially I am very thankful to all my friends who helped me in various level. I am grateful to my all classmate's and friends from SNST for their help and encouragement during my research work.

Finally, Words are insufficient to express my thanks to my thanks to my beloved parents, husband Mr. Shrinath of their support. This wouldn't have been possible without the extreme strength, love, understanding and most precious blessings I received from them.

Maheshwari khot

CONTENTS

Chapter	Title of Chapter	Page
---------	------------------	------

No.		No.
1.	Introduction to photocatalysis for water splitting	
	1.1 Nanotechnology	
	1.1.1 Evolution of Nanotechnology	
	1.1.2 Segments of Nanotechnology	
	1.1.3 Applications of Nanotechnology	
	1.1.4 Advantages of Nanotechnology	
	1.1.5 Disadvantages of Nanotechnology	
	1.1.6 Chemistry of Nanoparticle	
	1.2 Concept of Catalysis and Photocatalysis	
	1.2.1 Catalysis	
	1.2.2 Catalyst Mechanism	
	1.3 Concept of Nano-Catalysis	
	1.4 Introduction Photocatalyst	
	1.4.1 Photocatalysis	
	1.4.2 Transition Metal Oxides as photocatalyst	
	1.4.3 Titanium Dioxide (TiO2)	
	1.4.4 Structure of Titanium Dioxide (TiO2)	
	1.4.5 Semiconductor as photocatalyst	
	1.5 Principle of Photocatalysis	
	1.5.1 Requirement for good photocatalyst	
	1.5.2 Application of Photocatalyst	
	1.6. Photocatalytic Water Splitting	
	1.6.1 Artificial Photosynthesis	
	1.6.2. Artificial Leaf	
	1.7. Potential of making fuels using sunlight	
	1.7.1 Hydrogen Production	
	1.7.2. Hydrogen Production from Water	
	1.8. Reaction Mechanism	
	1.9. Structure related properties of TiO ₂	
	1.9.1 Strategies to develop visible light photocatalysts	
	1.9.2 Bandgap engineering	

ET)				
nism				
1.12 The Role of Sacrificial Agent				
water				

6. References	
---------------	--

GREEN SYNTHESIS OF METAL NANOPARTICLES AND THEIR APPLICATIONS IN BIOMEDICINE

A Synopsis of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR.

For the degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY.

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY BY

RUTUJA S. GUMATHANNAVAR.

UNDER THE GUIEDENCE OF

Dr. BHUSHAN P. CHAUDHARI Principle Scientist

Biochemical Sciences Division, CSIR – National Chemical Laboratory (NCL), Dr. Homi Bhabha Road, Pashan, Pune 411008.

UNDER THE CO-GUIDENNCE OF

Dr. K.D. PAWAR Assistant Professor, PhD.

School of Nanoscience and Biotechnology, Shivaji University, Kolhapur - 416004.

September (2017)

Development of Binary metal Oxide Nanostructures and their Applications as electrode Materials for Supercapacitors

A Dissertation of the Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Ms. Pratiksha D. Donolikar B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil M.Sc., Ph.D.

Center For Materials For Electronics Technology (C-MET)

Pashan Pune,

(2017-18)

Development of AB₂O₄ type Metal Oxide Nanostructures and their Applications as Electrode Material for Supercapacitors

A Synopsis of the Proposed Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Mr. Sagar D. Jadhav

B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil

M.Sc., Ph.D.

Centre for Materials for Electronics Technology (C-MET),
Pune

(2017-18)

SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

SNEHAL SUNIL JAGADALE

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018



SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

ANUJA ANNASAHEB HAREL

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018





NANOCRYSTALLINE TiO2/ZnO MULTILAYER THIN

FILM FOR DYE SENSITIZED

SOLAR CELL

DESSERTATION PHASE I SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY PHYSICS

UNDER THE FACULTY OF SCIENCE

MR. SWARUP.S. SHENDE

UNDER THE GUIDANCE OF

DR. HABIB.M. PATHAN (M.SC., P.HD.)

ADVANCED PHYSICS LABORATORY,
DEPARTMENT OF PHYSICS, SAVITRIBAI PHULE PUNE
UNIVERSITY.
PUNE- 411007, INDIA

DECEMBER, 2018-19

Prof. (Dr.) Chang Kook Hong

Professor
Department of Advanced
Chemicals & Engineering



Chonnam National University,

77 Yongbong-ro

Buk-gu, Gwangju, Korea.

Contact: (cell) +82-01-3719-7483

(Fax): +82-62-530-1889 Email: hongck@jnu.ac.kr

Date: 29-07-2018

Invitation Letter

To, Mr. Akhilesh Pramod Patil Scholl of Nanoscience and Technology Shivaji University, Kolhapur Vidyanagar-416004

Reference: Invitation letter for admission in my research group under Exchange Program Scheme.

Dear Mr. Akhilesh Pramod Patil

I please to inform you that your application has been accepted by our Chonnam National University under International Student Exchange Program. I am happy to accept you in my research group for this Fall semester. The semester will start from September-2018 and finish on Feb-2019. I will offer you the financial support during your stay at my Polymer Energy Materials Laboratory, School of Advanced Chemical Engineering. We will offer you 6,00,000 KRW (~600 USD) per month. The said amount is sufficient to stay at Kwangju.

If you have any further questions or need any assistance, please do not hesitate to contact me. I am looking forwards to seeing you.

With Best Regards

Prof. (Dr.) Chang Kook Hong

Advanced Chemical Engineering Department

Chonnam National University

Gwangju, Korea 500-757

Tel: +82-62-530-0635 (Lab), +82-62-530-1907

Fax: +82-62-530-1849, Email: hongck@chonnam.ac.kr (C. K. Hong)

표준입학허가서 (Certificate of Admission)

표준입학허가서 번호(Certificate of Admission No.): 0110020180589972

이 서식은 국내 대학의 유학생 입학담당 책임자가 작성하고 총(학)장이 직인을 찍어야 함(서명 또는 날인도 가능) (This page must be completed by a designated school official in Korea and signed by the President)

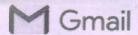
1.성(Family name) 이름(Give BAGAL QUUS SATISH	n name)	5. 상기 학생에게 등록금 최종납입	기한은 2018/08/31	사과 <u>6</u> 개월 과정 입학을 허가함! 이며, <u>2019/02/28</u> 까지
* 한자(漢字) 성명의 경우(중국, 일본 등	5) 한자 병기	학업을 마쳐야 한		
출생국가(Country of birth)	생년월일(Date of birth) 1993/09/01		ned above has been accepted for sool, majoring in Nano-Science Fee Due Date is 2018/0	Technology Joint Course
국적(Country of citizenship)	성별(Gender)		ust be completed no later than	2019/02/28
PI ⊊	☑ 남성(Male) ☐ 여성(Fe			
	_	b. 한국어 구사등	력(Korean proficiency)	
여권번호(Passport No.) L9091899	입학하가번호(Admission Number) 0110020180589972	(The stude	사능력 기준 도달 ent has the required Korean prof 력기준 미달, 별도연수 부과예정	personal comments.
이메일 주소(E-mail address)	of CMD Estimated	at the sch	ent is not yet proficient; Korean in ool or another institution)	
distribution of the second			사능력 불요:이유(Korean profici	ency is not required because)
2. 학교명(School name)	ALL CHILL CHILL CO	영어강의	수강	to the city of
전남대학교		7. 본교는 상기학	생의 6 개월 간의 평균 소.	요경비를 아래와 같이
		산출합니다.	(This school estimates the aver	rage expenses for the 6
학생입국시 통보할 학교담당자		month acader	mic term for the above mentione	d student as follows.)
(School official to receive notification of	f student's arrival in Korea)	a, 등록금(Tuiti	on and fees)	\$ 0
성명(Name) 전별	직위(Title) 당당	b. 생활비(Livin	ng expenses)	\$ 4,000
전화번호(Telephone) 0625	301272	c. JIEI(Other)		\$ 1,000
하고조사(Cohool address)		계(Total)		\$ 5,000
학교주소(School address)		8. 본교는 상기학	MINI 6 JURIZUOLA COM	
광주광역시 북구 용봉로 77		8. 본교는 장기학 신고 받았습니		비를 아래 내역과 같이 조달할 것으로
3. 이 입학허가서를 상기인에게 발급함	(해당란 표시하고 용 채울 것)		as been informed of the student	's means of support,
This certificate is issued to the stude			arracacerric territor	_month
	sittla fied above for .		udent's personal funds)	\$ 5,000
(Check and fill out as appropriate)	1 W. 1 0 4 1	AGAMMA AGAMM	Sponsor's support)	\$
a. 🗸 신입학(Initial attendace at			plarships; sponsored by)	
b. 재입학 또는 복학(Continu	ed attendance at this school)		R정부초청 (Korea) R초청 (University)	\$
c. 🗌 편입학(Transfer)			R조성 (University) R정부파견	\$
전 재적교명(Transferred f	rom	(Governm c-4, 21E	nent of home country)	\$
d. DIEI(Others)	Mary Committee Mary		(Others) om other source)	\$
4. 재학중이거나 등록할 과정 (한 곳에)		3,210,010,1	계(total)	\$ 5,000
Level of education the student is pursuing of	or will pursue in Korea(Check one)	※ 부족이보	당시 보증인 인적사항(Sponsor	- 5,000
a. 전문학사과정(Associate's)	b. 의학사과정(Bachelon	's) 성명(Nam	Control of the contro	s montation)
c.	Master's) d. 🗌 연구과정(Research	n) [[tionship):	THE RELEASE AND THE
e. 박사과정(석박사통합과정포함	Doctor's)	9. 出고(Remarks)		
f. 🗸 교환학생 학정취득과정(Excha	nge student's credit) g. 기타(Other)	9. UIII(norrains)	N. Miller Program is be	
h 한국어면수과정(Korean Langu		ouage Training)		
j. 일,학습 연계 유학과정	k ☐ 단기유학과정	등록금 면제(2018학년	려도 2학기 초청 교환학생)	and the state of t
				to the chief of
10. 지원자 확인 : 본인은 본인의 입학에	Ⅱ 관한 상기의 모든 조건에 따를 것을 동의히	하며, 상기 내용이 모두 사실과	상위없음을 확인합니다.	
본인은 또한 상기 학교에서			후일시체류하고자 함을 확인합니	ICt.
	nd agreed to comply with the terms and con		DUU JENUL LA	
	on this form is true and correct. I certify that			purpose
of pursuing a <u>Exchar</u>	nge student's credit course o	f study at the school named ab	oove.	
	NIL CARL CARL CAR	BAGAL OJUS SATISH	COR. FRICE	2018/05/21
본인 서명		이름 Name of student		연월일
Signature of student		Name of student		Date
	에 상기 1항에서 9항까지의 모든 내용이 사 토한 결과 상기학생의 자격이 본교의 입학하			
	penalty of perjury that all information provide	경영 (1985년 1일) 전 [1] [1] [1] [1] [1] [1] [1] [1] [1] [1]		
evaluating the student's application,	transcripts or other records of courses taken tudent's qualifications meet all standards for	n and proof of financial respons		हाणहता
			Clista #/stvrt	내기린나
2018/05/21	The second secon	전남대학교	대학교 총(학)장	(stamped)
발급일(Date issued	President, Ch	nonnam National University	University(College)	

표준입학허가서 (Certificate of Admission)

표준입학허가서 번호(Certificate of Admission No.): 0110020180589975

이 서식은 국내 대학의 유학생 입학담당 책임자가 작성하고 총(학)장이 직인을 찍어야 함(서명 또는 날인도 가능) (This page must be completed by a designated school official in Korea and signed by the President)

1.성(Family name) 이름(Given na	ame)	5. 삼기 학생에게 본교의 신화학소재공학과	학과 6 개월 과정 입학을 허가합니다.
PATIL AKHILESH PRAMOO		등록금 최종납입기한은 2018/08/31	이며, 2019/02/28 까지
* 한자(漢字) 성명의 경우(중국, 일본 등) 현	반자 병기	학업을 마쳐야 합니다.	WIND CORD CAR
출생국가(Country of birth)	생년월일(Date of birth) 1993/02/07	The student named above has been accepted study at this school, majoring in Advanced Che The Tuition and Fee Due Date is 2018	emicals & Engineering .
국적(Country of citizenship)	성별(Gender)	requirements must be completed no later than	/08/31 and all academic 2019/02/28
인도	☑ 남성(Male) ☐ 여성(Female)		
	E as(wae) Ga(renae)	6. 한국어 구사능력(Korean proficiency)	
여귄번호(Passport No.)	입학러가번호(Admission Number)	한국어구사능력 기준 도달 (The student has the required Korean pro	oficiency)
K1358935	0110020180589975	□ 한국어 능력기준 미달. 별도연수 부과예	Mark and the state of the state
이메일 주소(E-mail address)	CONTRACTOR	(The student is not yet proficient. Korean at the school or another institution) 한국어 구사능력 불요:이유(Korean profic	
2. 학교명(School name)			
전남대학교		7. 본교는 상기학생의 <u>6</u> 개월 간의 평균 소	
학생입국시 동보할 학교담당자	I CAULA / PLACE	신출합니다. (This school estimates the average month academic term for the above mention	
(School official to receive notification of stu	dent's arrival in Korea)	a. 등록금(Tuition and fees)	\$ 0
성명(Name) 전별	직위(Title) 담당	b. 생활비(Living expenses)	\$ 4,000
전화번호(Telephone) 0625301	272	c. 7IEI(Other)	\$ 1,000
학교주소(School address)		계(Total)	\$ 5,000
광주광역시 북구 용봉로 77		8. 본교는 상기학생이 6 개월간의 소요경	비를 아래 내역과 같이 조달항 것으로
	The second secon	신고 받았습니다.	
3. 이 입학허가서를 삼기인에게 발급함(해		(This school has been informed of the studen estimated for an academic term of6.	it's means of support, month
This certificate is issued to the student n	amed above for :	a.본인부당(Student's personal funds)	\$ 5,000
(Check and fill out as appropriate)		b.보증인부담(Sponsor's support)	\$
a. ☑ 신입학(Initial attendace at this		c.장학금(Scholarships; sponsored by)	
b. 제입학 또는 복학(Continued a	attendance at this school)	c-1. 한국정부초청 (Korea) c-2. 대학초청 (University)	<u>\$</u>
c. □ 편입학(Transfer)	the National States and the second	c-3. 자국정부파견	\$
전 재적교명(Transferred from		(Government of home country) c-4, 기타 (Others)	\$
d. DIEI(Others)	Lincoln De Obo Ti	d.7 Et(Fund from other source)	_\$
 재학중이거나 등록할 과정 (한 곳에만 표 Level of education the student is pursuing or will 		계(total)	\$ 5,000
a. 전문학사과정(Associate's)	b. 학사과정(Bachelor's)	※ 보증인부담시 보증인 인적사항(Sponsor	's information)
c.		성명(Name) :	THE CALL TAIL
e. 박사과정(석박사통합과정포함Doct		관계(Relationship) :	AN THE TWO THE
f. 🗸 교환학생 학정취득과정(Exchange s	student's credit) g. JEH(Other)	9. 비고(Remarks) :	
h. 한국어연수과정(Korean Language j. 일,학습 연계 유학과정	j. 의국어연수과정(Foreign Language Train k	re) 등록금 면제(2018학년도 2학기 추첨 교환학생)	<u>na a mue Carol Co</u> nc
본인은 또한 상기 확교에서 Student Certification : I have read and a I certify that all information provided on t	한 상기의 모든 조건에 따를 것을 동의하며, 상기교환학생 학점취득과정의 이수 목적만을 greed to comply with the terms and conditions of his form is true and correct. certify that seek to student's credit course of study a	위해 한국에 입국하여 일시체류하고자 함을 확인합니	
본인 서명	- CANEA	이름	연월일
Signature of student	Nam	e of student	Date
증명서 등 모든 서류를 심사하고 검토한 School Certification: I certify under pena evaluating the student's application, tran	결과 상기학생의 자격이 본교의 입학허가서 기		습니다.
2018/05/21	전남대학	교 대학교 총(학)장	△ (stamped)
발급일(Date issued)	President, Chonnam N	National University University(College)	们素创奇



Your selection for dissertation beginning June/July 2018

NARI ICMR <labtraining.nari@gmail.com> Bcc: dvd123jnv@gmail.com

6 July 2018 at 11:39

Dear Student

As per your application and interest, you have been selected for the dissertation program beginning July 2018. You are suggested to go through the terms and conditions available on our website before you decide to join. Please communicate your willingness to join the program by 13th of June 2018, after which the offer would be extended to the next candidate. You are expected to join by 18th of July 2018. Please report to Dr. Vijay Nema with the original letter of recommendation as provided earlier as scanned copy and your CV. All the best.

To whom soever it may cencern

This is to certify that Mr. Devendra Det has joined as 'Project trainer' for his M.Sc. Desiretation work under my quidance since 23/07/18.

Odara 107/18.

(Dr. Vandana Saxena)

Scientist - C'

Immemology & Cerology Div.

National AIDC Res. Institute,

Pune - 411017.

To

Date: 29.06.2018

The Director
National Chemical Laboratory
Pune 411008

Subject: Joining of Ms. Shalmali Rajendra But se as trainee at NCL

Dear Sir,

Ms. Shalmali Rajendra Burse is a second year MSc. student of School of Nanoscience and Technology, Shivaji University Kolhapur. She has been selected as a full semester project trainee by me to do the project work under my supervision for a period of 12 months from July 01, 2018 to June 30, 2019. I have examined her credentials as a student and found her suitable to work in my group. She will be working on the "Synthesis and Application of Metal-Semiconductor Composite materials". The necessary lab space and facilities will be provided to her by me.

The student will be trained on all safety procedures and I will ensure that she follows them while working in the lab. I will also ensure that she will be working only in presence other PhD students and under my direct guidance. Please allow her in NCL premises during office time as per rules.

I sincerely request you to kindly permit her to work at NCL as full semester project trainee.

Yours Sincerely,

(Dr Skatabdi Porel Mukherjee)

Forwarded by Chair, Physical & Materials Chemistry

Dy. Director

July

Dr. Wafia Masih 12 17 18
Principal Scientist
Resource Management Unit

Human Resource Management Unit CSIR-National Chemical Laboratory Dr. Homi Bhabha Road, Pune-411008, INDIA



सीएसआयआर-राष्ट्रीय रासायनिक प्रयोगशाला

(वैजानिक तथा औद्योगिक अनुसंधान परिषद) डॉ. होमी भाभा मार्ग, पुणे - 411 008. भारत



CSIR-NATIONAL CHEMICAL LABORATORY

(Council of Scientific & Industrial Research)

Dr. Homi Bhabha Road, Pune - 411008. India

To, Security Officer CSIR-National Chemical Laboratory Pashan Road, Pune-411008

July 18, 2018

Subject: Visit of Miss Madhura Deshpande

Dear Sir / Madam,

This is certify that Miss Madhura Deshpande from Shivaji Univesity, Kolhapur is visiting my lab in Physical & Materials Chemistry Division for the purpose of her MSc project work in Nanotechnology to be carried out. She can allow entering into NCL main gate for the purpose of her work to be carried out in my laboratory during period July 18, 2018 to Jan 17, 2019.

Dr. Dattatray Late

Copy To: 1) To Security office

2) Phy & Mat Chem. Div. office

3) Personal file Dr. D. J. Late

.

Communications Channels

NCL Level DID: 2590

NCL Board No.: +91-20-25902000 Four PRI Lines: +91-20-25902000 FAX

Director's Office: +91-20-25902601

COA's Office SPO's Office : +91-20-25902660 : +91 20 25902664 WEBSITE www.ncl-india.org

CSIR- NATIONAL CHEMICAL LABORATORY PUNE 411 008

No. NCL/CEPD/C&P/2018

10-07-2018

OFFICE MEMORANDUM

Sub: Permission to work as a Intern Traince in CSIR-NCL

Sanction of Competent Authority is hereby accorded to grant permission to Mr.Somnath J. Kachkatti, student of Shivaji University, Kolhapur, to carry out his M.Sc. project work in CEPD Division of CSIR- NCL for the period from 10-07-2018 to 09-01-2019 under the guidance of Dr. Meitram Niraj Luwang, Scientist.

He has submitted IP Form duly completed and signed

(SHOBHA KAMAT SECTION OFFICER

To:

Mr.Somnath J. Kachkatti, CEPD Division

Along with a form of undertaking which may be submitted duly filled in and signed at the time of joining. He/She is requested to submit a recent colour photograph and a copy of Identity Card issued by Institute/Organization.

Copy to:

1) Chair, CEPD Division

2) Guide, Dr. Meitram Niraj Luwang, CEPD Division

3) Security Section

BIOLOGICAL SYNTHESIS OF NANOPARTICLES, CHARAC TRIZATION & APPLICATION FOR DYE DEGRADATION

THESIS SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTERS IN SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

RUTUJA CHANDRAKANT NANDRE

UNDER THE GUID ANCE OF

Dr. SNEHAL V. MORE

CSIR-NATIONAL CHEMICAL LABORATORY

BIOCHEMICAL SCIENCE DEVISISON, PUNE.

4416008 MAHARA SHTRA, INDIA.

80

UNDRETHE CO-GUIDANCE OF

DR. KIRAND. PAWAR

SCHOOL OF NANOSCIENCE AND TECHNOLOGY,

SHIVAJI UNIVERSITY, KOLHAPUR.

2018-2019.

M.Sc. Nanoscience Research Project thesis Subject: Nanoscience

1. Name of student: Miss. Rutuja Chandrakant Nandre.

Qualification: M.Sc. (II)

School of Nanoscience & Technology,

Shivaji University, Kolhapur.

Address: 8/772 Shantinagar, Thorat Chowck, Ichalkaranji.

2 Name of the Guide: Snehal Vijay More.

25%

SYNTHESIS OF MAGNETIC NANOPARTICLES BY SOLVOTHERMAL METHOD AND ITS BIOMEDICAL APPLICATIONS

DESSERTATION PHASE II SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Miss. Pandit Parimal Padmakar

UNDER THE GUIDANCE OF

Prof. P.S.Patil

M.Sc., Ph.D. FinstP (UK)

UNDER THE CO-GUIDANCE OF

Dr.P.B. Patil

[M.Sc. Ph.D., SET, NET(JRF), GATE]

SCHOOL OF NANOSCIENCE AND TECHNOLOGY, SHIVAJI UNIVERSITY, VIDYANAGAR KOLHAPUR – 416 004 MAHARASHTRA, INDIA. 2018-2019

FUNCTIONALIZATION OF MAGNETIC NANOPARTICLES FOR BIOMEDICAL APPLICATIONS

DISSERTATION PHASE 2 SUBMITTED TO SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

SAKSHI VIVEK SHETE

UNDER THE GUIDANCE OF Prof. Dr. P. S. Patil

And

UNDER THE CO-GUIDANCE OF Dr. P. B. Patil

SCHOOL OF NANOSCIENCE AND TECHNOLOGY, SHIVAJI UNIVERSITY, VIDYANAGAR KOLHAPUR – 416 004 MAHARASHTRA, INDIA. APRIL, 2019

1| School of nanoscience and technology,Kolhapur

Lithium Manganese Oxide with Nickel doped Nanocomposite - a Potential Novel Cathode Material for Lithium-ion Batteries.

A dissertation phase I submitted to

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY BY

GADKARI VAIBHAV BHIKAJI

UNDER THE GUIDANCE OF

Prof.(Dr.) L. D. JADHAV M.Sc., Ph.D.

SCHOOL OF NANOSCIENCE AND TECHNOLOGY, SHIVAJI UNIVERSITY, VIDYANAGAR KOLHAPUR – 416 004

MAHARASHTRA, INDIA.

2018-19

guell.

"Development of Metal Oxide Nanostructures and their Applications as Electrode Material for Supercapacitors".

ENERGY STORAGE DEVICE

DISSERTATION PHASE I SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Mr. SIDDHESH V. WAGH

UNDER THE GUIDANCE OF

Dr. L. D. JADHAV

M.Sc., Ph.D.

Sulls



NANOCRYSTALLINE TiO2/ZnO MULTILAYER THIN

FILM FOR DYE SENSITIZED

SOLAR CELL

DESSERTATION PHASE I SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

PHYSICS

UNDER THE FACULTY OF SCIENCE

MR. SWARUP.S. SHENDE

UNDER THE GUIDANCE OF

DR. HABIB.M. PATHAN (M.SC., P.HD.)

ADVANCED PHYSICS LABORATORY,
DEPARTMENT OF PHYSICS, SAVITRIBAI PHULE PUNE
UNIVERSITY.
PUNE- 411007, INDIA

DECEMBER, 2018-19

SOME CONTRIBUTION TO NANOELECTRONIC LOGIC AND MEMORY

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY KOLHAPUR

FOR THE DEGREE OF

M.Sc.

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE

MR. PRITAM P. CHOUGULE

UNDER THE GUIDANCE OF

DR. M. N. LUWANG

M.Sc., Ph.D.

AND

UNDER THE CO-GUIDANCE OF

DR. T. D. DONGALE

M.Sc., Ph.D.

COMPUTATIONAL ELECTRONICS AND NANOSCIENCE RESEARCH LABORATORY, SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY SHIVAJI UNIVERSITY, KOLHAPUR

(2016)

"IN-SITU EXTRACELLULAR FUNGAL SYNTHESIS OF METAL NANOPARTICLES"

Thesis submitted to school of Nanoscience and Technology,

Shivaji University, Kolhapur

For the degree of

Masters of Science in Nanoscience and Technology

By

Miss. Sangar Madhuri Anil

Under The Guidance Of

Mrs. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory,

Pune - 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nanoscience & Technology,

Shivaji University, Kolhapur.

2016-2017

Study of Organic Perovskite Materials for Solar Cells

A Dissertation of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR

For the Degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

Mr. ROHAN PASTE

UNDER THE GUIDANCE OF

Dr. Kartick Tarafder,

Assistant Professor,
Department of Physics,
National Institute of Technology Karnataka
Surathkal, Mangaluru-575025
Karnataka, India.

And

UNDER THE CO-GUIDANCE OF

Dr. P.S. Patil,

Coordinator,

School of Nanoscience and Technology, Shivaji University Kolhapur- 416004, Maharashtra- India.

(2017)





Study of Thermally Synthesized Graphitic Carbon Nitride Based Nanocomposite for Photocatalytic Application

A Project Report Submitted To

SHIVAJI UNIVERSITY, KOLHAPUR

For the Partial Fulfillment

of

Degree of Master of Science

In

Nanoscience and Technology

Under The Faculty Of Science

By

Miss. Vidya Vasant Alman

B. Sc. (Nanoscience and Technology)

Under The Guidance of

Dr. S. P. Gokhale

Principal Scientist

Physical and Materials Chemistry Division

CSIR-National Chemical Laboratory

Pune-411008

SCHOOL OF NANOSCIENCE AND TECHNOLGY, SHIVAJI UNIVERSITY, KOLHAPUR (INDIA) 2017-2018

A Synopsis of the Proposed Research Project Submitted to School Of Nanoscience and biotechnology

Title

SYNTHESIS OF BIOCOMPATIBLE AND BIODEGRADABLE POLYMERSOME FOR TARGETED DRUG DELEVERY

BY

JYOTI TANAJI THANEKAR.

M. Sc.

NANOSCIENCE

(Faculty of Science)

Under the Guidance of

Dr. Baijayantimala Garnaik

(Sr. Pr. Scientist)
PSE DIVISION
CSIR – NCL, PUNE

Co-Guide

Dr. K. K. Sharma

(Assistant Professor)
SHIVAJI UNIVERSITY, KOLHAPUR-416004
(2017)

FUNGAL AND ENZYMATIC SYNTHESIS OF NANOPARTICLES, CHARACTERIZATION AND APPLICATIONS

Thesis of the proposed research project submitted to

SCHOOL OF NANOSCIENCE AND TECHNOLOGY

For the degree of

Master of Science

IN

NANOSCIENCE AND TECHNOLOGY

Under the Faculty of Science

BY

Miss. Priteeka Pradip Suryawanshi

M.Sc. II (Post Graduate Student)

Under The Guidance of

Dr. Snehal V. More

Division of Biochemical Sciences,

National Chemical Laboratory, Pune 411008

&

Under The Co-Guidance Of

Dr. Kiran D. Pawar

School of Nano science and Technology, Shivaji University, Kolhapur, 2017-2018





Synthesis and Characterization of UV Curable Hybrid Nanocomposites and their Applications in Coatings

A dissertation submitted to

Shivaji University, Kolhapur

For the degree of

MASTER OF SCIENCE

In

Nanoscience and Technology

Under the faculty of **Science and Technology**

By

Miss. Pranita Prakash Magadum

Under the guidance of

Dr. P. P. Wadgonkar

Dr. K. K. Sharma

(Chief Scientist)

(M. Sc., Ph.D.)

Guide

Co-guide

School of Nanoscience & Technology, Shivaji University Vidyanagar, Kolhapur- 416004

&

Laboratory CSIR-National Chemical (NCL), Pune-411008

May 2017-18

PHOTOCATALYSIS FOR WATER SPLITTING

A DISSERTATION SUBMITTED TO

SHIVAJI UNIVERSITY, KOLHAPUR.

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY

BY

MAHESHWARI M. KHOT

UNDER THE GUIDANCE OF

<u>Dr. C.S.GOPINATH</u>

Senior Principal Scientist

SCHOOL OF NANOSCIENCE AND TECHNOLOGY,

SHIVAJI UNIVERSITY, VIDYANAGAR

KOLHAPUR – 416 004

MAHARASHTRA, INDIA.

CERTIFICATE

This is to certify that the dissertation entitled, "Photocatalysis For Water Splitting" which is being submitted herewith for the award of the degree of Master of Science in Nanoscience and Technology of Shivaji University, Kolhapur is the result of the original research work completed by Ms. Maheshwari. M. Khot under my supervision and guidance and to the best of my knowledge and belief, the work embodied in this dissertation has not formed earlier the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Place:	Kol	lhapur
--------	-----	--------

Date:

Signature of the Research Guide

Signature of the Research Co-guide

Dr. C. S. Gopinath

Dr. K. K. Sharma

CSIR-National Chemical Laboratory,

School of Nanoscience and Technology,

Pune.

Shivaji University, Kolhapur.

Signature of Coordinator

Prof. (Dr.) P. S. Patil.

School of Nanoscience and Technology,

Shivaji University, Kolhapur.

DECLARATION

I hereby declare that the dissertation entitled "*Photocatalysis For Water Splitting*" completed and written by me has not previously formed the basis for the award of any Degree or Diploma or other similar title of this or any other University or examining body.

Further I declare that I have not violated any of the provisions under the acts of Copyright/Privacy/ Cyber/IPR etc. amended from time to time.

Place: Kolhapur Ms. Maheshwari. M. Khot

Date: Research Student

ACKNOWLEDGEMENTS

It gives me great pleasure to express my deep sense of gratitude towards my guide and mentor, **Prof** (**Dr.**) **C. S. Gopinath**. Working under his guidance is one of the most rewarding experiences in my life only because of his generous attitude, constant encouragement, constructive criticism, erudite guidance and unending interest.

I am very much thankful to CSIR- National Chemical Laboratory, Pune for providing me the necessary facilities during my project.

I am very much thankful to **Prof.** (**Dr.**) **P. S.Patil** Head of Department of School of Nanoscience and Technology, Shivaji University, Kolhapur.

I gratefully acknowledge to my Co-guide Prof (Mr.) K. K. Sharma. Also Prof (Ms.). S. Jagadale for their constant support during my research work.

I must thank to all my school and college teachers, because of their valuable guidance. I could shape up my carrier in right way and able to see my dreams coming true.

I am thankful to all labmates for constant encouragement and moral support, Ms. Pradnya, Ms. Ruchi, Ms. Layana, Ms. Kshirodra, Dr.Naresh, Mr. Manoj, Mr.. Prabhakar, Mr. Nitin, Mr. Himanshu, Mr. Ravi for their help. My special thanks to Ms. Pradnya Bharad for her cooperation and friendly advice received during the progress of this project.

Especially I am very thankful to all my friends who helped me in various level. I am grateful to my all classmate's and friends from SNST for their help and encouragement during my research work.

Finally, Words are insufficient to express my thanks to my thanks to my beloved parents, husband Mr. Shrinath of their support. This wouldn't have been possible without the extreme strength, love, understanding and most precious blessings I received from them.

Maheshwari khot

CONTENTS

Chapter	Title of Chapter	Page

No.		No.
1.	Introduction to photocatalysis for water splitting	
	1.1 Nanotechnology	
	1.1.1 Evolution of Nanotechnology	
	1.1.2 Segments of Nanotechnology	
	1.1.3 Applications of Nanotechnology	
	1.1.4 Advantages of Nanotechnology	
	1.1.5 Disadvantages of Nanotechnology	
	1.1.6 Chemistry of Nanoparticle	
	1.2 Concept of Catalysis and Photocatalysis	
	1.2.1 Catalysis	
	1.2.2 Catalyst Mechanism	
	1.3 Concept of Nano-Catalysis	
	1.4 Introduction Photocatalyst	
	1.4.1 Photocatalysis	
	1.4.2 Transition Metal Oxides as photocatalyst	
	1.4.3 Titanium Dioxide (TiO2)	
	1.4.4 Structure of Titanium Dioxide (TiO2)	
	1.4.5 Semiconductor as photocatalyst	
	1.5 Principle of Photocatalysis	
	1.5.1 Requirement for good photocatalyst	
	1.5.2 Application of Photocatalyst	
	1.6. Photocatalytic Water Splitting	
	1.6.1 Artificial Photosynthesis	
	1.6.2. Artificial Leaf	
	1.7. Potential of making fuels using sunlight	
	1.7.1 Hydrogen Production	
	1.7.2. Hydrogen Production from Water	
	1.8. Reaction Mechanism	
	1.9. Structure related properties of TiO ₂	
	1.9.1 Strategies to develop visible light photocatalysts	
	1.9.2 Bandgap engineering	

1.9.3 Plasmonic Nanostructures for Solar Water Splitting	
1.9.4 Schottky junction and direct electron transfer (DET)	
1.9.5 Near field electromagnetic and scattering mechanism	
1.9.6 Plasmon resonant energy transfer-	
1.10 Role of Co-Catalyst	
1.11 Fabrication of Heterojunction	
1.11.1 CdS/TiO2 Heterojunction-	
1.12 The Role of Sacrificial Agent	
Literature Survey	
Synthesis and Methodology	
3.1 Preparation of light absorbing material	
3.1.1 Doctor Blade Method	
3.1.2 SILAR	
3.2 <u>Synthesis</u>	
3.3 <u>Fabrication of photochemical cell</u>	
3.2.1 Catalyst Preparation	
3.3.1 Preparation of Au-TiO ₂ paste	
3.3.2 Preparation FTO/TiO ₂ /PbS film	
3.3.3 Preparation of FTO/TiO2/PbS/CdS film	
3.3.5 Deposition of Cocatalyst	
3.4 Method for catalytic activity study- photocatalytic water	
splitting	
Result and Discussion	
4.1 Physicochemical Characterization	
4.2 UV-Visible Spectroscopy	
4.3 X-ray Diffraction (XRD)	
4.4 Scanning Electron Microscopy	
4.5 Transmission Electron Microscopy	
4.6 Photocatalytic Hydrogen Generation:	
4.7 Significance of work	
4.8 Mechanism	
4.0 Wechanish	
	1.9.4 Schottky junction and direct electron transfer (DET) 1.9.5 Near field electromagnetic and scattering mechanism 1.9.6 Plasmon resonant energy transfer- 1.10 Role of Co-Catalyst 1.11 Fabrication of Heterojunction 1.11.1 CdS/TiO2 Heterojunction- 1.12 The Role of Sacrificial Agent Literature Survey Synthesis and Methodology 3.1 Preparation of light absorbing material 3.1.1 Doctor Blade Method 3.1.2 SILAR 3.2 Synthesis 3.3 Fabrication of photochemical cell 3.2.1 Catalyst Preparation 3.3.1 Preparation of Au-TiO2 paste 3.3.2 Preparation FTO/TiO2/PbS film 3.3.3 Preparation of FTO/TiO2/PbS/CdS film 3.3.5 Deposition of Cocatalyst 3.4 Method for catalytic activity study- photocatalytic water splitting Result and Discussion 4.1 Physicochemical Characterization 4.2 UV-Visible Spectroscopy 4.3 X-ray Diffraction (XRD) 4.4 Scanning Electron Microscopy 4.5 Transmission Electron Microscopy 4.6 Photocatalytic Hydrogen Generation: 4.7 Significance of work

6. References	
---------------	--

GREEN SYNTHESIS OF METAL NANOPARTICLES AND THEIR APPLICATIONS IN BIOMEDICINE

A Synopsis of the Proposed Research Submitted to

SHIVAJI UNIVERSITY, KOLHAPUR.

For the degree of

MASTER OF SCIENCE

IN

NANOSCIENCE AND TECHNOLOGY.

UNDER THE FACULTY OF SCIENCE AND TECHNOLOGY BY

RUTUJA S. GUMATHANNAVAR.

UNDER THE GUIEDENCE OF

Dr. BHUSHAN P. CHAUDHARI Principle Scientist

Biochemical Sciences Division, CSIR – National Chemical Laboratory (NCL), Dr. Homi Bhabha Road, Pashan, Pune 411008.

UNDER THE CO-GUIDENNCE OF

Dr. K.D. PAWAR Assistant Professor, PhD.

School of Nanoscience and Biotechnology, Shivaji University, Kolhapur - 416004.

September (2017)

Development of Binary metal Oxide Nanostructures and their Applications as electrode Materials for Supercapacitors

A Dissertation of the Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Ms. Pratiksha D. Donolikar B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil M.Sc., Ph.D.

Center For Materials For Electronics Technology (C-MET)

Pashan Pune,

(2017-18)

Development of AB₂O₄ type Metal Oxide Nanostructures and their Applications as Electrode Material for Supercapacitors

A Synopsis of the Proposed Research Project Submitted to

SCHOOL OF NANOSCIENCE AND BIOTECHNOLOGY

For the degree of

M.Sc.

IN

NANOSCIENCE

Under the Faculty of Science

BY

Mr. Sagar D. Jadhav

B.Sc. Nanoscience

Under the Guidance of

Dr. D. R. Patil

M.Sc., Ph.D.

Centre for Materials for Electronics Technology (C-MET),
Pune

(2017-18)

SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

SNEHAL SUNIL JAGADALE

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018



SYNTHESIS OF MULTIFUNCTIONAL SILVER HALIDE NANOPARTICLE / POLYMER COMPOSITES FOR WATER TREATMENT

A Dissertation Submitted to



Shivaji University, Kolhapur

For the Degree of Master of Science

In

Nanoscience and Nanotechnology
Under the faculty of Science and Technology

By

ANUJA ANNASAHEB HAREL

Under the guidance of

Dr. Rita S. Dhodapkar

(Sr. Technical Officer)

Dr. Sukdeb Pal

(Scientist)

Dr. Kiran D. Pawar

(M.Sc., Ph. D.)

(Co-Guide)

School of Nanoscience and Technology,

Shivaji University, Vidyanagar

Kolhapur- 416 004

HOST ORGANIZATION:

CSIR-National Environmental Engineering Research Institute (NEERI), Nehru Marg, Nagpur

April 2018





Dr. D. H. Dagade <dhd chem@unishivaji.ac.in>

Decision on Manuscript ID jp-2019-07914c.R1

3 messages

The Journal of Physical Chemistry <onbehalfof@manuscriptcentral.com>

Tue, Oct 1, 2019 at 2:00 AM

Reply-To: fourkas-office@jpc.acs.org To: dhd_chem@unishivaji.ac.in

30-Sep-2019

Journal: The Journal of Physical Chemistry

Part: Part B: Biophysics, Biomaterials, Liquids, Soft Matter

Section: B: Liquids, Chemical and Dynamical Processes in Solution, Spectroscopy in Solution Please note that the final decision on journal Part and Section remains with the journal Editors.

Title: "Dielectric Relaxation and Hydration Interactions for Protic and Aprotic Ionic Liquids Using Time Domain

Reflectometry"

Authors: Musale, Shrikant; Kumbharkhane, Ashok; Dagade, Dilip

Manuscript ID: jp-2019-07914c.R1

Manuscript Status: Accept

Dear Dr. Dagade:

Congratulations; your Article has been accepted for publication in The Journal of Physical Chemistry Part B: Biophysics, Biomaterials, Liquids, Soft Matter, B: Liquids, Chemical and Dynamical Processes in Solution, Spectroscopy in Solution.

You should receive Proofs in approximately 1-2 weeks, and your manuscript should be published on the Web in 2-4 weeks and in a print issue in 6-8 weeks. Please note: An ACS ID is required to access proof materials. If you do not have an ACS ID, you will be prompted to create one.

Should you happen to be away during that period, you might assign one of your collaborators to do the proofreading for you. Once a manuscript appears on the Web, it is considered published. Any change to the manuscript will then need to be submitted to the journal office as an Addition or Correction.

Please address all further inquiries regarding this manuscript by contacting the Journal Production Department at jpcprod@acs.org or 614-447-3665.

Please consider making your JPC article open access. For more information on ACS AuthorChoice, go to http://pubs.acs.org/page/4authors/authorchoice/index.html. Please send an e-mail to support@services.acs.org if you need any assistance with this process.

Once your paper is published, you can track downloads and citations of your work by logging into the ACS Publishing Center (https://pubs.acs.org/publish/dashboard) and selecting "Published".

Thank you again for choosing The Journal of Physical Chemistry for the publication of your work.

With sincere regards,

Prof. John Fourkas Senior Editor The Journal of Physical Chemistry Editor Email: fourkas-office@jpc.acs.org

Confirmation of your selection for "Just Accepted" publication:

YES, I agree that my accepted manuscript may be published on the ACS Web site as a 'Just Accepted' manuscript.

PLEASE NOTE: This email message, including any attachments, contains confidential information related to peer review and is intended solely for the personal use of the recipient(s) named above. No part of this communication or any related attachments may be shared with or disclosed to any third party or organization without the explicit prior written consent of the journal Editor and ACS. If the reader of this message is not the intended recipient or is not responsible for delivering it to the intended recipient, you have received this communication in error. Please notify the sender immediately by e-mail, and delete the original message. Thank you.

Dr. D. H. Dagade <dhd chem@unishivaji.ac.in>

Tue, Oct 1, 2019 at 6:05 AM

To: shrikant musale <sm musale@yahoo.co.in>, Ashok Kumbharkhane <akumbharkhane@yahoo.co.in>

Dear Professor Kumbharkhane Sir and Shrikant Musale,

I am happy to inform you that our paper is accepted for publication in The Journal of Physical Chemistry B. Hearty Congratulations both of you for your efforts and dedication.

Dr Dilip H Dagade

[Quoted text hidden]

Ashok Kumbharkhane <akumbharkhane@yahoo.co.in>

Tue, Oct 1, 2019 at 10:40 AM

To: "Dr. D. H. Dagade" <dhd chem@unishivaji.ac.in>

Dear Professor Dagade,

I am also happy that our paper has been accepted for publication in the International Journal of Physical Chemistry.

Good

Sincerely yours

Dr. Kumbharkhane A.C. Professor School of Physical Sciences, Swami Ramanand Teerth. Marathwada University, NANDED 431 606 (MS), (India)

[Quoted text hidden] [Quoted text hidden]

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the Shivaji University. Finally, the recipient should check this email and any attachments for the presence of viruses. Shivaji University accepts no liability for any damage caused by any virus transmitted by this email.

Date: 01/03/2019

To Whomsoever It May Concern

Certificate

This is to certify that Kum. /MISS. Vidhaya Sharad Gaikwad Student of Shivaji Univercity Kolhapur Conducting M.sc II (Applied Chemistry) Cource has Completed Task Of Field Visit and carried out Successful Practical Work On Determination Of Nitrogen, Phosphorus and potassium on 05/12/2018 to 05/01/2019 in Our Granulated Fertilizer Plant Rukadi Of Shetkari sah Sangh Ltd Kolhapur

he | she | they was | were found sincere and hardworking.

We wish him / her / them all the success in future and best luck.

Chemist Rukadi Fertilizer Plant Manager Rukadi Fertilizer Plant.



Nimbkar Agricultural Research Institute

(Registered under The Societies Registration Act XXI of 1860 and the Bombay Public Trust Act of 1950)
Tambmal, Phaltan-Lonand Road, P.O. Box 44, Phaltan 415 523, Maharashtra (India)
Telephone: 9168937964* Email: nariphaltan@gmail.com*Website: http://www.nariphaltan.org

CERTIFICATE

This is to certify that Miss. Komal Maruti Yele Studying in M.Sc. from department of "Applied Chemistry" Shivaji University, Kolhapur has successfully completed training from 18/6/2018 to 17/7/2018 at the Nimbkar Agricultural Research Institute (NARI), Phaltan, Dist. Satara.

She was found to be punctual and hard working during the training period.

I wish her success in her future career.

PESE THE LAND OF

N. Nombkar Dr. Nandini Nimbkar President

April 30, 2019



सीएसआईआर - राष्ट्रीय रासायनिक प्रयोगशाला

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद) डॉ. होमी भाभा मार्ग, पुणे - 411 008, भारत

CSIR - NATIONAL CHEMICAL LABORATORY

(Council of Scientific & Industrial Research) Dr. Homi Bhabha Road, Pune - 411 008, India



CERTIFICATE

This is to certify that the work entitled "Highly Active MCM-41 Supported Pd Complex for Mizoroki-Heck Cross Coupling Reaction" was carried out by Miss. Genge Jyoti Uttam, under my supervision at Chemical Engineering and Process Development, Division, CSIR-National Chemical Laboratory, Pune, as a partial fulfillment for the award of Masters of Science in Applied Chemistry to the Department of Applied Chemistry, Shivaji University, Kolhapur, MS, India.

This report has not been submitted for any other examination and does not form a part of any other course undergone by the candidate.

Pune 26 April 2019 Wade

Dr. C. V. Rode, FNAE, FMAS Emeritus Scientist and Professor AcSIR Chemical Engineering and Process Development Division CSIR-National Chemical Laboratory, Pune.

डॉ. चं. व. रोडे / DR. C. V. RODE एमेरिटस वैज्ञानिक/EMERITUS SCIENTIST सीएसआयआर-रम्ट्रीय रासायनिक प्रयोगशाला CSIR-NATIONAL CHEMICAL LABORATORY gut / PUNE-411008.



Ref.:

Date:

Our Ref: - SCPPL/GRN/ 2018 - 19.

Date: - 26/05/2018.

CERTIFICATE

This is certify to that *Mr. Prashant Vitthal Mali*, The student of *Shivaji University Kolhapur* has completed his industrial training for M. Sc.I

Applied Chemistry under the guidance and supervision of *Shri Niwas R*.

Pawar (Q.A. Head) in our organization for the period 28th April 2018 to 20th

May 2018. During his in plant training we observed, he has hard working

May 2018. During his duties. He has picked up the knowledge of Administration,

& sincere in his duties. He has picked up the knowledge of Administration,

temployees difficulties & motivation, Production & Quality activities in

Chemical industry very well.

He bears a good morel characters. We wish him all the best in his future. This certificate is issued on his own request.

With Best Regards, For Sama Chemo Pharma Pvt. Ltd,

Shri Prakash P. Yadav. (Name & Signature of the Manager) think

Shri Niwas R. Pawar. (Name & Signature of the Guide)







जिल्हा मृद चाचणी व मृद सर्वेक्षण अधिकारी कार्यालय, कोल्हापूर

कार्यालयाचा पत्ता - जिल्हा मृत बावणी व मृत सर्वेक्षण प्रयोगशाळा, वाव. थी. योवार नगर, कोल्हापूर. दुरस्वनी क्रमांक : ०२३१-२६२३२८३ ई-मेल - sollkolhapur@gmail.com

जा. क.

A. /

ZIAHARASHTRA STATE AGRICULTURE DEPARTMENT CERTIFICATE

Certified that this report entitled "To study soil testing and analysis" a case study of village wise soil fertility index in kolhapur district in Maharashtra state is the record of bonafied research carried out by Mr. Kamble Shubham Devendra M.Sc. Applied Chemistry, Part-II Shivaji University, Kolhapur. Under my supervision and guidance for fulfillment of 27 th December 2019 to 28th January 2019 onwards.

Further certify that the research work is part of the project "To study soil testing and village fertility index in relation to balanced fertilization and increased product of Shahuwadi and Panhala Taluka in Kolhapur district" analysis of different chemical soil properties undertaken by him and included in the thesis are based on his own observations and number of portion thererfore has been submitted in part of full to any other university.

STORY OF THE PARTY OF THE PARTY

ct Soil Survey & Soil Testing Unices, Soil Survey & Soil Testing Lab Kolhapur



श्री दूधगंगा वेदगंगा

सहकारी साखर कारखाना लि., बिद्री

(मौनीनगर), ता, कागल: वि. कोल्हापुर-४५६ २०८ (महाराष्ट्र)

कोन : केक्टरी : (०२३२५) २५४९२२ ते २५४९२६ केंक्स : २५४९॥२ कोस्कापुर ऑकिस : रापाकृष्ण मंदिराजयळ, साहुपुरी २ री गल्ली. कोस्कापुर, (०२३५) २६६५५७८, २६६०४४९ · E-mail kip bidrisgrassanchamet in

SHRI DUDHGANGA VEDGANGA

SAHAKARI SAKHAR KARKHAMA LTD. BIDRI.

MICHININAGAR TAL KAGAL DIST-KORHAPURAN DIN MAHARASHTRAL

PH : BIDRI EXCH : (02325) 254922 TO 254926 FAX: 254972 KOLHAPUR OFF.: NEAR RADHAKRISHNA MANDIR SHAHUPURI 2ND LANE KOLHAPUR PH.: (0231) 2661578, 2660449 = E-mail : Kip_bidrisgr@sanchamet.in

Ref. No.:

LWO/97/3003

/2018-19

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Kumari. Vijaya Balkrishna Barkale, student of M.SCsuccessfully Kolhapur has II (Applied Chemistry) Shivaji Vidyapeeth Completed Project work on "EFFUENT TREATMENT PLANT & WATER TREATMENT PLANT" with reference to Shri Dudhaganga Vedganga Sahakari Sakhar Karkhana Ltd Bidri .

During the period she was found to be sincere and hardworking.

We wish her all the success in future.

(R.D.DESAI) MANAGING DIRECTOR

Place-Bidri Date-19-12 -2018

Copy to

Kumari. Vijaya Balkrishna Barkale At-Po-Waghapur, Tal- Bhudargad Dist-Kolhapur





M/s. S. P. CHEMICALS & REFRACTORIES

Plot No. 34, 35, 47, Nipani Co. Op. - Industrial Estate, Jatrat-Shripewadi Road, NIPANI - 591 237, Tal. Chikodi, Dist. Belgaum (Kamataka)
Phone No. 08338 - 224524, Mob. No. 0-9657835124, 0-9036818361, 0-9743934524.
Email spohem refrastryahoo.co.in Web Site : www.spohem.in

Ref. No.

Date:

01/07/2018

To, Prof. G.B.Kolekar Co-ordinator, Department of Applied Chemistry, Shivaji University, KOLHAPUR-416004

This is to certify that Miss Hardare Komal Kishorkumar student of Shivaji University, Kolhapur has completed an industrial training for one month in our organization. During the training, she was exposed to the implementation of the production planning and control functions such as process planning, job scheduling, maintenance management, inventory control, forecasting and quality systems.

She was found punctual, hard working and sincere during training period.

We wish her all the best for her future endeavor.

For S P Chemicals & Refractories

Praihad Dabhole (Partner)



REDMI NOTE 6 PRO MI DUAL CAMERA

Date: 01/03/2019

To Whomsoever It May Concern

Certificate

This is to certify that Kum. | MISS. Priyanka Sambhaji Kamble Student of Shivaji University Kolhapur Conducting M.sc II (Applied Chemistry) Cource has Completed Task Of Field Visit and carried out Successful Practical Work On Determination Of Nitrogen, Phosphorus and potassium on 05/12/2018 05/01/2019 in Our Granulated Fertilizer Plant Rukadi Of Shetkari sah Sangh Ltd Kolhapur.

he | she | they was | were found sincere and hardworking.

We wish him | her | them all the success in future and best luck.

Rukadi Fertilizer Plant

Rukadi Fertilizer Plant. examined of the of the





M/s. S. P. CHEMICALS & REFRACTORIES

Plot No. 34, 35, 47, Nipani Co. Op. - Industrial Estate, Jatrat-Shripewadi Road,

NIPANI - 591 237. Tal. Chikodi, Dist. Belgaum (Karnataka) Phone No. 08338 - 224524, Mob. No.: 0-9657835124, 0-9036818361, 0-9743934524.

Email : spchem_refra@yahoo.co.in Web Site : www.spchem.in

Ref. No. :

Date:

01/07/2018

To. Prof. G.B.Kolekar Co-ordinator, Department of Applied Chemistry, Shivaji University, KOLHAPUR-416004

This is to certify that Miss Bachankar Kshitija Dayanand student of Shivaji University, Kolhapur has completed an industrial training for one month in our organization. During the training, she was exposed to the implementation of the production planning and control functions such as process planning, job scheduling, maintenance management, inventory control, forecasting and quality systems.

She was found punctual, hard working and sincere during training period.

We wish her all the best for her future endeavor.

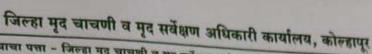
For S P Chemicals & Refractories

Praihad Dabhole (Partner)

and Retractories







कार्यालयाचा पत्ता - जिल्हा मृद चाचणी व मृद सर्वेक्षण प्रयोगशाळा, वाय. थी. पोवार नगर, कोल्हापूर. दुरस्वनी क्रमांक : ०२३१-२६९३९८३ ई-मेल - soilkolhapur@gmail.com

जा. क्र.

वि. /

MAHARASHTRA STATE AGRICULTURE DEPARTMENT <u>CERTIFICATE</u>

Certified that this report entitled "To study soil testing and analysis" a case study of village wise soil fertility index in kolhapur district in Maharashtra state is the record of bonafied research carried out by Mr. Patil Sumit Madhukar M.Sc II. Applied Chemistry, Part-II Shivaji University, Kolhapur. Under my supervision and guidance for fulfillment of 27 th December 2019 to 28th January 2019 onwards.

Further certify that the research work is part of the project "To study soil testing and village fertility index in relation to balanced fertilization and increased product of Shahuwadi and Panhala Taluka in Kolhapur district" analysis of different chemical soil properties undertaken by him and included in the thesis are based on his own observations and number of portion thererfore has been submitted in part of full to any other

university.

जिल्हा मृद सर्वेक्षण के मृद चाचणी अधिकारी. मृद सर्वेक्षण व मृद चाचणी प्रयोगशाका कोल्हा रूर

REDMI NOTE 6 PRO



श्री दूधगंगा वेदगंगा

सहकारी साखर कारखाना लि., बिद्री

(मौनीनगर), ता, कागल: वि. कोल्हापुर-४५६ २०८ (महाराष्ट्र)

कोन : केक्टरी : (०२३२५) २५४९२२ ते २५४९२६ केंक्स : २५४९॥२ कोस्कापुर ऑफिस : रापाकृष्ण मंदिराजयळ, साहुपुरी २ री गल्ली. कोस्कापुर, (०२३५) २६६५५७८, २६६०४४९ · E-mail kip bidrisgrassanchamet in

SHRI DUDHGANGA VEDGANGA

SAHAKARI SAKHAR KARKHAMA LTD. BIDRI.

MICHININAGAR TAL KAGAL DIST-KORHAPURAN DIN MAHARASHTRAL

PH : BIDRI EXCH : (02325) 254922 TO 254926 FAX: 254972 KOLHAPUR OFF.: NEAR RADHAKRISHNA MANDIR SHAHUPURI 2ND LANE KOLHAPUR PH.: (0231) 2661578, 2660449 = E-mail : Kip_bidrisgr@sanchamet.in

Ref. No.:

LWO/97/3003

/2018-19

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Kumari. Vijaya Balkrishna Barkale, student of M.SCsuccessfully Kolhapur has II (Applied Chemistry) Shivaji Vidyapeeth Completed Project work on "EFFUENT TREATMENT PLANT & WATER TREATMENT PLANT" with reference to Shri Dudhaganga Vedganga Sahakari Sakhar Karkhana Ltd Bidri .

During the period she was found to be sincere and hardworking.

We wish her all the success in future.

(R.D.DESAI) MANAGING DIRECTOR

Place-Bidri Date-19-12 -2018

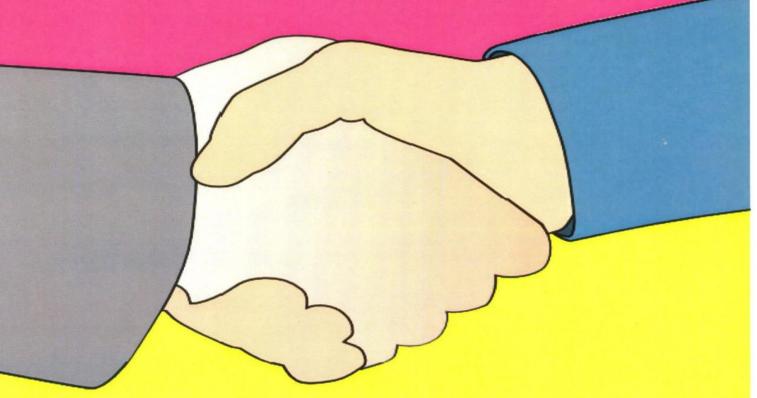
Copy to

Kumari. Vijaya Balkrishna Barkale At-Po-Waghapur, Tal- Bhudargad Dist-Kolhapur



Memorandum of Understanding









Vaikunth Mehta National Institute of Cooperative Management

University Road, Pune - 411 007

(An Institution of National Council for Cooperative Training, New Delhi)

MEMORANDUM OF UNDERSTANDING

BETWEEN

VAIKUNTH MEHTA NATIONAL INSTITUTE OF COOPERATIVE MANAGEMENT, PUNE

AND

YASHWANTRAO CHAVAN SCHOOL OF RURAL DEVELOPMENT SHIVAJI UNIVERSITY, VIDHYANAGAR, KOLHAPUR

This Memorandum of Understanding (hereinafter referred to as the 'MOU') is made and entered to on 18th September, 2014 (hereinafter referred to as 'the Effective Date')

BETWEEN

VAIKUNTH MEHTA NATIONAL INSTITUTE FOR COOPERATIVE MANAGEMENT a National level training Institute having its address at University Road, Ganeshkhind, Pune with its head quarter at New Delhi (hereinafter referred to as "VAMNICOM") of the one party;

AND

YASHWANTRAO CHAVAN SCHOOL OF RURAL DEVELOPMENT (hence referred as YCSRD)SHIVAJI UNIVERSITY, VIDHYANAGAR, KOLHAPUR a Maharashtra state Govt University having its address at old PB Road, Vidhyanagar, Kolhapur as its headquarter of the second party.

VAMNICOM, Pune and YCSRD SHIVAJI UNIVERSITY, VIDHYANAGAR, KOLHAPUR

shall be collectively referred to as the "Parties" and individually as the "Party".

WHEREAS :.

- a) VAMNICOM is an apex management training institute catering to the management development, training, research and consultancy needs of various co-operative organizations, government departments and other national bodies.
- b) Yashwantrao Chavan School of Rural Development, an integral organization of the Shivaji University, Vidhyanagar, Kolhapur catering to the multidisciplinary academic, research, extension and consultancy needs of various stakeholders of the higher education.

c) The Parties assure each other that their co-operation is based upon mutual trust and fair performance to achieve a sustainable relationship.

NOW IT IS HEREBY UNDERSTOOD AND WITNESSED as follow:

ARTICLE 1

OBJECTIVE

The Parties agree that the objective of this MOU (hereinafter referred to as "the Objective") is to set up the general principles of collaboration between both Parties, according to which the Parties may jointly identify fields of mutual interest and create opportunities to develop Programmes for cooperation in training, education and other knowledge-based activities on the basis of reciprocity and mutual benefit.

ARTICLE 2

AREAS OF COLLABORATION

The Parties agree to co-operate and collaborate in the areas of training, education and other knowledge-based activities covering the following:

2.1 Research and Consultancy

This involves:

- 2.1.1. Collaboration in joint research of mutual benefit. The findings of such research will be disseminated to relevant co-operatives and other institutions upon mutual conditions agreed to by both Parties; and
- 2.1.2 Cooperation in constructing any case study for the benefit of both Parties. Any case studies/project works/research projects developed will be used in academic, research, training and extension programmes as one of the learning tools.

2.2 Exchange Information and Expertise

Exchange information, materials, publications, expertise and other related matters on subject of common interest which involves:

- 2.2.1 resource person(s) from / selected by respective Parties be invited to carry out presentations of papers in various programmes such as seminar, workshop and other knowledge-based activities as and when necessary; and
- 2.2.2 published materials produced by respective Parties such as books, journals, magazines, monographs, etc. will be made accessible to both Parties.

2.3 Training of Trainers

Officials will be given a basic knowledge of the principles and methods used in designing and implementing training programmes for cooperative leaders and managers

2.4 Study Visit

Host/facilitate officials from/selected by respective Parties to carry out study visits to relevant organizations in their respective States.

2.5 Strategic Alliance

Facilitate strategic alliances among co-operatives in terms of doing business.

2.6 Any other area of knowledge-based activities as determined and mutually agreed upon by both Parties.

ARTICLE 3

IMPLEMENTATION

The Parties shall work out the practical details of co-operation and rural development between both Parties and in general to ensure proper and effective implementation of this MOU subject to the existing laws and policy of either Party. The Parties shall consult each other via contact persons as determined by the respective Parties for working out the details of the responsibilities of both institutions in terms of the areas of collaboration as agreed upon in Article 2.

ARTICLE 4

COST AND FUNDING

- 4.1 Each Party shall be responsible for its own costs incurred in carrying out its responsibilities under this MOU.
- 4.2 The Parties understand that no funding has been specifically allocated to facilitate this MOU and that continued participation in this MOU is contingent upon the availability of funds of the respective parties involved.
- 4.3 Each party may, upon subsequent mutual agreement, bear some part of the expenditure regarding **Article 2** as agreed upon by both parties from time to time.

ARTICLE 5

INTELLECTUAL PROPERTY RIGHT

Ownership of any intellectual property created in the performance of work managed under the framework established by the MOU will be determined in accordance with applicable intellectual property law and regulations of the YCSRD, Shivaji University and VAMNICOM procedures and practices. Nothing in this MOU shall be construed as a license or assignment of any rights in any intellectual property from either party to the other party.

ARTICLE 6

CONFIDENTIALITY

The Parties agree to keep confidential and not disclose to any third parties, persons or individual any confidential information acquired by YCSRD, Shivaji University and VAMNICOM in connection with this MOU unless otherwise authorized in advance in writing by either Party.

ARTICLE 7

TERMINATION AND MODIFICATION

- 7.1 This MOU shall take effect from the Effective Date and shall be valid for a period of three (3) years unless and otherwise terminated in accordance with clause 7.2 of this MOU. This MOU may be renewed by mutual written prior agreement between the Parties before the expiry date.
- 7.2 This MOU may be modified by mutual determination of the Parties and may be terminated by either Party without legal effect. Either Party may terminate this MOU at any time by giving at least ninety (90) days written notice to the other Party. Any program or activity that has been approved or implemented at the time of termination of this MOU shall be allowed to proceed until its schedule completion, unless otherwise agreed upon by the Parties.

ARTICLE 8

NOTICE

Any notice to be given hereunder by either Party to the other may be sent by first class registered delivery paid post addressed to the address of the other Party as follows –

VAMNICOM

Director

Pune

Vaikunth Mehta National Institute of Co- operative Management

University Road, Pune 411 007 India

YCSRD, Shivaji University,

Director, YCSRD and Registrar,

Kolhapur

Shivaji University, Kolhapur 416004

The Parties hereby agree that this MOU is not meant to be conclusive or exhaustive. Instead, this MOU outlines the general understanding and the frame work for mutual cooperation between the Parties and is aimed at paving the way to enter into formal Agreement/Agreements.

IN WITNESS WHEREOF the Parties have here to set their hands the day and year first above written.

Signed by for and on behalf of VAIKUNTH MEHTA NATIONAL INSTITUTE OF CO-OPERATIVE

MANAGEMENT, PUNE- 411 007

Signed by

for and on behalf of

YCSRD and Shivaji University

Kolhapur 416004

Er.SANJEEB PATJOSHI, IPS, IG

DIRECTOR, VAMNICOM

DRASMAB ANUGALEavan

DIRECTOR YESRDADUS

Dr. M.R. JOSHI

REGISTRAR, VAMNICOM

DR. D. V. MULEY REGISTRAR

5 Registrar

Shivaji University, Kothapur

निबंधक REGISTRAR वै. मे. रा. स. प्र. संस्थान V. M. National Instt. of Coop. Management विद्यापीठ मार्ग, पुणे- 411 007. University Road, Pune - 411 007. Witnessed by

Ken Mashwat S Pahil Prof & Head, Depthob
ASSOCIATE Professor Economic, Shings lenvery
Rockeyon
CIT, VAMNICIM

(Name & Designation)

Witnessed by

B A.V. B. Karack

(Name & Designation)

Dated: 18/19/2014

Place: Kollapour



Certificate of Participation

awarded to

Shivaji (mineralty, Kalhanur. & Rusal Development,

for participating in

Annual Status of Education Report (ASER 2016)

The largest citizen-led education survey in India

Grentare B.S.

State Coordinator

Program Director-ASER

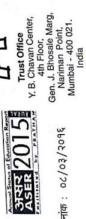
mini huden

Dr. Wilima Wadhwa

Pratham Education Foundation







दिनांक : ०८/०३/२०१६

Phone (91-22) 22819561/ 22819562

Fax (91-22) 22819563

त्रहा: अध्यापक/ व्रहा : दोनानि ्मः अमेल मिठानिकार

विषय : 'असर २०१५' सर्वेक्षणातील सहभागाबाबत आमार.

महोदय,

आपत्या संस्थेने / महाविद्यालयाने 'असर २०१५' सर्वेश्वणात आपला सहमाग दिल्याबद्दल आम्ही आपले आभारी आहोत. आपल्या सहभागामुळे आम्हाला हे सर्वेक्षण करण्यात मोठे सहाय्य मिळाले आहे. 'असर २०१५' चा अहवाल राज्य स्तरावर प्रसिध्द झाल्यानंतर आपल्या संस्थेला / महाविद्यालयाला हा अहवाल सादर केला जाईल.

कळावे, लोभ असावा ही विनंती.

धन्यवाद् !



अवा सर्वे संचालक, प्रथम

B4/54, Satdarjung Enclave, New Delhi 110 029. Contact: 91 11 46023612, 91 11 26716084 Fax: 91 11 26716084E-mail: aser.contact@gmail.com

Website: www.pratham.org www.prathamusa.org E-mail: mumbai@pratham.org

Registration no. E - 15454 (Mumbal) - 1994 ■ Tax exemption under section 80(G) ■ FCRA Reg. No:083780624



Yashwantrao Chavan School of Rural Development, Shivaji University Kolhapur and Business standard Ltd.

This Memorandum of Understanding hereinafter referred to as "MoU" entered Into on Wednesday 15th July 2015 between **Business standard Ltd, a company** registered in Maharashtra, India under the Companies Act of 1956, hereinafter referred to as ("Business standard") located at Ground floor , 161/A ,3A,Modi baug, Shivaji Nagar, Pune., Maharashtra, which expression Shall unless repugnant to the context means and include its successors and Assigns of the **ONE** PART.AND YCSRD. Shivaii University is represented herein bv (Dr.)V.N.Shinde, Registrar (hereinafter referred to as YCSRD located at Humanities Building, Vidya Nagar Shivaji University Kolhapur-416 004, Kolhapur (MAHARASHTRA) INDIA. which expression shall unless repugnant to the context mean and intrude its successors and assigns of the OTHER PART.

The two parties recognize the institutional level capacity building as base for the mutually beneficial program (hereinafter referred as "Program")

1. Objective:

- 1.1. To help YCSRD in the training and placement of the students by leveraging Business standard's entry level Skilling & Recruitment for summer/Winter/Final placements.
- 1.2. To enhance the reach of YCSRD to different companies for campus recruitment and encouragement for business standard B school project competition initiative.
- 1.3. To help students of the YCSRD build their curriculum vitae through mentoring activities this includes assistance to students as industry mentor.
- 1.4. To enhance the employability of the students of YCSRD by providing add-on Seminars / Workshops/Guest lectures.
- 1.5. To effectively use the infrastructure available with YCSRD for betterment of Students' learning and recruitment process solely for academic activities of the school with prior permission of the director or from the appropriate authority.
- 1.6. To be the Media partner for major events of YCSRD.

- 1.7. To help YCSRD for participating in B-school survey and guide as consultant.
- 1.8. To provide subscription of business standard to students and faculty members as per the policy of business standard.

2. Nature of collaboration:

- 2.1. This MoU is for enhancing the campus placement percentage by using Business standard for entry level Skilling & Recruitment.
- 2.2. The primary purpose of this MoU is to set terms for use of Bussiness standard For automated campus recruitment and pre-placement / post placement skilling process.
- 2.3. The MoU is valid initially for one year from the date of execution, under which YCSRD will be provided access to the Business standard (<u>www.business-standard.com</u>) for campus recruitment and or pre-placement / post placement skilling.
- 2.4. Both the parties shall take all reasonable steps for the successful completion of the collaboration and shall cooperate with each other to perform their respective obligations.
- 2.5. Business standard shall provide YCSRD with agreed upon access to the Placement initiatives and necessary training to operate and service support.
- 2.6. YCSRD will use these services as per the guidelines and policies of Business standard pvt ltd.
- 2.7. YCSRD shall provide the details required for providing access to Business standard platform to Business standard. Business standard will assist the Placement Director /Training and Placement office (TPO).
- 2.8. The Placement director / Training and Placement officer will validate all the student profiles and related documents.
- 2.9. YCSRD will provide the physical infrastructure for facilitating campus Recruitment / training through Business standard. Business standard will be providing the necessary information to facilitate recruitment / skilling.

3. Mutual Obligations:

- 3.1. This obligation shall not be exclusive to both parties and shall not disallow each party from having similar collaboration with others, except as expressly stated in this MoU. There should be no obligation on any party to compensate other in any manner or to make any claims.
- 3.2. Each party shall respect the other's intellectual property and shall not use any trade name, trade mark, symbol /logo or designation belonging to other without any prior written permission of the other.

3.3. Nothing contained in this MoU shall be construed as resulting in creation of a relationship of employer and employee or university authority/ staff or agent between Business standard and YCSRD. YCSRD (and/or Business standard) is not authorized to make any representation, contract or commitment on behalf of Business standard (and /or YCSRD) without prior written consent from Business standard (and /or YCSRD).

4. General

- 4.1. Both the parties agree that Business standard is not obliged to recruit any fixed number of students from YCSRD directly or through the Business standard Platform.sililarly the YCSRD, Shivaji University is not obliged to subscribe fixed number of subscription from the students /faculty wise during the said period.
- 4.2. Both parties shall not use the name of the other party in any Advertisement or make any public announcements without any prior written approval of the other.
- 4.3. Each party shall be at liberty to terminate this MoU with a written notice of three (3) months to other party without any compensation or seeking legal redress.
- 4.4. Any difference or dispute between the parties concerning the interpretation or implementation or application of any provisions of this MOU shall first be settled amicably through mutual consultation and negotiations between the parties. Any unsettled dispute arising under this MoU between two parties and others in this regard will be settled in courts of Kolhapur through arbitration in accordance with the Arbitration and Conciliation Act 1996. This MoU shall be governed by the laws of India.
- 4.5. Confidentiality: Each party shall undertake to observe the secrecy of confidential information received from or supplied to the other party during the period of implementation of this MOU.
- 4.6. Any changes in implementation procedures which are not as per the present MoU will be discussed and will be incorporate in agreement with two parties.

This Memorandum of Understanding is prepared in two identical copies; each Party will hold one original duly signed. For and or behalf of the for and or behalf of the

	usi					

Manager	Registrar



Rajshree gavhane <rajshree.gavhane91@gmail.com>

Fw: test samples for PXRD and thermoanalysis workshop

D.S. Bhange

 bhangeds@yahoo.co.in>

Fri, Jan 31, 2020 at 11:52 AM

To: "rajshree.gavhane91@gmail.com" <rajshree.gavhane91@gmail.com>

Dr. D.S. Bhange Assistant Professor, Dept. of Chemistry Shivaji University Kolhapur-416004 India.

---- Forwarded message -----

From: Heikkilä, Mikko J <mikko.j.heikkila@helsinki.fi>

To: rietveld I@ill.fr < rietveld I@ill.fr>

Sent: Wednesday, 25 October, 2017, 02:28:42 pm IST

Subject: test samples for PXRD and thermoanalysis workshop

Hi all!

It's been a while since I posted anything, but now we have a course starting related to powder XRD and thermoanalytical methods and again I'm supposed to partially lecture it and handle the XRD workshop part. Already last time I used HTXRD for the XRD workshop and used the same samples as my TGA colleague to show what kind of complementary information can be acquired. I have some suitable materials in my mind already, but as some of you probably have experience on these, do you have any suggestions? Something that e.g. would turn from metal salt to oxide (seen easily with XRD and STA (=TGA+DSC)), then at higher temperatures phase changes from one oxide to other with or without mass loss (phase change with mass change obviously seen with XRD and TGA, without mass change with XRD and maybe with DSC). Additional bonus if one phase formed has a negative thermal coefficient along one axis. The oven is Anton-Paar HTK1200N so from RT up to 1200 °C is possible. Probably in air, unless we decide to use the GCMS attached to our STA, in which case measurements might be done in He.

Many	thanks	if a	anyone	has i	tips	rela	ted	to	this	ļ
------	--------	------	--------	-------	------	------	-----	----	------	---

Best regards,

Mikko

Mikko Heikkilä, M.Sc.

Laboratory Engineer

Department of Chemistry

P.O.Box 55 (Chemicum, A.I. Virtasen aukio 1)

FI-00014 University of Helsinki

p. +358 504 160 572

Please do NOT attach files to the whole list <Alan.Hewat@NeutronOptics.com> Send commands to listserv@ill.fr eg: HELP as the subject with no body text The Rietveld_L list archive is on http://www.mail-archive.com/rietveld_l@ill.fr/



Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com>

Fwd: Visit of students to your reputed Institute CCMB, Hyderabad

1 message

anna gophane <anna.gophane@gmail.com> To: Manne Venkata Santha Kumar <mvdrsanthakumar@gmail.com> Sat, Feb 23, 2019 at 11:04 PM

----- Forwarded message ------

From: anna gophane <anna.gophane@gmail.com>

Date: Sat 23 Feb, 2019, 11:03 PM

Subject: Visit of students to your reputed Institute CCMB, Hyderabad

To: <priya@ccmb.res.in>

Hello sir/Madam.

A group of 11 students of M. Sc. Part II zoology (Cell Biology specialization) along with one Staff member is planed to visit to your reputed instutite, CSIR- center for Cellular and Molecular Biology, Hyderabad. Student would like to seek information about working of your institute and remarkable breakthroughs your institute contributed to science. We would like to visit your Lacones in laboratories for conservation.

Please, kindly allow and organise our visit.

Details of visit:

Institute Name: Department of Zoology, Shivaji University, Kolhapur, Maharashtra.

No. Of Students: 11 No. Of staff: 01

Date of Visit: 25 -27 th February 2019 (any one day and time you find convenient)

Expecting positive and early response

Thanking you



वेक्ठ महता राष्ट्रीय सहकारी प्रबंध संस्थान, विद्यापीठ रोड, पूणे - 411 007

VAIKUNTH MEHTA NATIONAL INSTITUTE OF CO-OPERATIVE MANAGEMENT

University Road, Pune - 411 007





Dr. Y.S. Patil

Associate Professor & Head, Centre for Information Technology

No. VM/CIT-YSP/MoU/2014-15/

3rd February, 2015

The Director Yashwantrao Chavan School of Rural Development Shivaji University Vidyanagar KOLHAPUR 416 004, Maharashtra

Sub: Study visit of students of MCA (Rural Informatics) - reg.

Dear Sir,

We are pleased to invite the students of MCA (Rural Informatics) of your Institute for study visit to organisations which are actively involved in information and communication technology development like C-DAC, NIC, etc. Besides, the students will also get an opportunity to see the IT implementation in VAMNICOM. The said study visit may be organized during 11th and 12th February, 2015 as a part of the MoU between VAMNICOM and YCSRD.

We look forward for your confirmation at the earliest.

Thanking you,

Yours faithfully, Kentil

(Y.S. Patil)

(संस्थान हिन्दी पत्राचार का स्वागत करता है।)

दूरभाव : PHONE : 020 - 66221400 / 25537974 /66221440 (D)

फैक्स : FAX : 91-020-25537726

E-mail: cit@vamnicom.gov.in &

Web-site: www.vamnicom.gov.in



वैकुंठ मेहता राष्ट्रीय सहकारी प्रबंध संस्थान, विद्यापीठ रोड, पुणे - 411 007 VAIKUNTH MEHTA NATIONAL INSTITUTE OF CO-OPERATIVE MANAGEMENT University Road, Pune - 411 007



Dr. Y.S. Patil Associate Professor & Head, Centre for Information Technology

No.VM/CIT-SU/VISIT/2016-17

6th February, 2017

To The Director Yashwantrao Chavan School of Rural Development, Shivaji University, Kolhapur - 416004 Maharashtra

Kind Att. to : Mrs. Vaishali P. Bhosale, Asst. Director/Asst. Professor

Sub: Study Visit of MCA (Rural Informatics) students - reg.

Dear Sir,

We are pleased to invite the students of MCA (Rural Informatics) of your Institute for study visit to organizations which are actively involved in information and communication technology development like C-DAC, NIC, Kirloskar Oil Engines Limited, etc. Besides, the students will also get an opportunity to see the IT implementation in VAMNICOM. The said study visit may be organized during 8th & 9th February, 2017 as a part of the MoU between VAMNICOM and YCSRD.

We look forward for your confirmation at the earliest.

Thanking you,

Yours faithfully,

KUL

(Y.S. Patil)

(संस्थान हिन्दी पत्राचार का स्वागत करता है।

दूरभाष : PHONE : 020 - 66221400 / 25537974 /6622144440(D) E-mail : <u>cit@vamnicom.gov.in</u>, yspatil@vamnicom.gov.in फैक्स : FAX : 91-020-25537726 Web-site : <u>www.vamnicom.gov.in</u>









Photographs of Industrial visit of MCA students



Rajshree gavhane <rajshree.gavhane91@gmail.com>

Fw: Invitation to the evaluation process for PD and TE projects

D.S. Bhange

 bhangeds@yahoo.co.in>

Fri, Jan 31, 2020 at 11:50 AM

To: "rajshree.gavhane91@gmail.com" <rajshree.gavhane91@gmail.com>

Dr. D.S. Bhange Assistant Professor, Dept. of Chemistry Shivaji University Kolhapur-416004 India.

---- Forwarded message -----

From: Mihaela Damian <mihaela.damian@uefiscdi.ro>

To: D.S. Bhange <bhangeds@yahoo.co.in>

Sent: Tuesday, 26 November, 2019, 03:21:42 pm IST

Subject: RE: Invitation to the evaluation process for PD and TE projects

Good afternoon,

Thank you for you swift answer.

We would very much appreciate if you could update you profile from BrainMap platform, by selecting your expertize domains - ERC domains 2019(using the following path "reviewer section"/"reviewer expertise"/"ERC 2019"), preferably within 5 days period after receiving this e-mail message.

If you have any questions, please do not hesitate to contact us.

We will get back to you with details during the next period.

Kind regards,

Mihaela Damian

From: D.S. Bhange [mailto:bhangeds@yahoo.co.in] Sent: Tuesday, November 26, 2019 11:32 AM

To: Mihaela Damian

Subject: Re: Invitation to the evaluation process for PD and TE projects

Dear Dr. Michaela Damian,

I am happy to see your email regarding the invitation as an expert reviewer for Romanian project calls. I will be available for reviewing the projects and I accept your invitation for the same. Thanking you

Sincerely yours.

Dr. D.S. Bhange

Assistant Professor,

Dept. of Chemistry

Shivaji University

Kolhapur-416004

India.

On Thursday, 21 November 2019 19:17:12 IST, Mihaela Damian <mihaela.damian@uefiscdi.ro> wrote:

Dear Professor,

The Ministry of Education and Research and the Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI - www.uefiscdi.gov.ro) have launched also the two calls in 2019 for proposals dedicated to human resources development (Postdoctoral research and Young research teams Projects).

We kindly ask you to take part in our current evaluation process as a reviewer/rapporteur. The evaluation process will take place between November 2019 and March 2020.

If you agree to act as reviewer/rapporteur, you will receive a fee of 55 EUR (49 EUR net amount) per project. For your presence in the panel meeting (via Skype), you will receive a fee of 275 EUR (247 EUR net amount) per day.

For an accurate recruitment of experts, please update your scientific profile in BrainMap.ro platform, https://www.brainmap.ro/, our online community of researchers. To access your account use the Sign Up option (upper right corner), using the e-mail address on which you have received this notification. To recover your password, click on Forgot your password.

We would highly appreciate if you could update your profile, do not forget to select your areas of expertise (ERC 2019 Domains), and please let us know if you are available for our evaluation process, preferably within five (5) days after receiving this invitation.

If you have any further questions, you can ask for support from:

- Project Officer: Mihaela Damian (mihaela.damian@uefiscdi.ro)
- IT Help Desk: support@uefiscdi-direct.ro

Best regards,

Irina BIŢESCU

Head of Department Fundamental Research and the Human Resources Development Projects Funding Department

Mihaela Anca DAMIAN

Project officer

Fundamental Research and the Human Resources Development Projects Funding Department

Executive Agency for Higher Education, Research,

Development and Innovation Funding

E-mail: mihaela.damian@uefiscdi.ro

Phone: +4021 30.80.502

Address: 21-25 Mendeleev Str, 1st sector, zip cod 010362

Bucharest

 Π Please consider the environment before printing this e-mail

PROTEJEAZA MEDIUL INCONJURATOR - Chiar este nevoie sa printezi acest email?

PROTEJEAZA MEDIUL INCONJURATOR - Chiar este nevoie sa printezi acest email?

Prezentul mesaj este confidential si apartine UEFISCDI. Acesta se adreseaza numai persoanei mentionate ca destinatar si persoanelor autorizate sa-l primeasca. In cazul in care nu sunteti destinatarul vizat, va aducem la cunostinta ca dezvaluirea, copierea, distribuirea sau initierea unor actiuni pe baza prezentei informatii sunt strict interzise si atrag raspunderea civila si penala conform reglementarilor legale in vigoare. Daca ati primit acest mesaj dintr-o eroare, va rugam sa ne anuntati imediat, ca raspuns la mesajul de fata si sa-l stergeti apoi din sistemul dumneavoastra.

Este interzisa reproducerea, distribuirea sau publicarea sub orice forma a continutului materialelor prezentate in acest mesaj, de catre orice persoana, fara acordul prealabil al UEFISCDI.

UEFISCDI nu este raspunzatoare pentru orice modificari care pot fi aduse prezentului mesaj de o persoana neautorizata. Apreciem si va multumim pentru cooperare.

Please consider the environment before printing this email ...

This message is confidential and it is property of the Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI). It is exclusively destined to the person mentioned as addressee, as well as to any other person authorized to receive it. In case you are not the intended addressee, we hereby inform you that the disclosure, copying or distribution of the present information, or the initiation of any action based on it, are strictly forbidden and determine legal responsibility. If you have received it by mistake please let us know by reply and then delete it from your system. Any form of reproduction, dissemination, copying, disclosure, modification, distribution and/or publication of this message without UEFISCDI approval is forbidden. Opinions, conclusions and other information in this message that do not relate to the official message shall be understood as neither given nor endorsed by UEFISCDI. We appreciate your cooperation. Thank you!