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Nationality Indian

Date of birth 02/06/1993

Gender Female

### Profile Overview

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I specialise in researching 'Diatoms', the photosynthetic microalgae known for their characteristic silica (SiO<sub>2</sub>) cell walls and lipids as main storage compounds. My expertise includes from understanding the diversity of diatoms utilising morphology and molecular tools to microalgal culturing. Currently, I'm working on a specific group of diatoms to decipher their diversity, evolutionary relationships, and distribution patterns using molecular tools. In my future endeavours, the skills to use molecular tools will facilitate me in studying diverse groups of organisms spanning from macroscopic to microscopic levels. Also, I intend to expand my expertise in microalgal culturing at the industrial level, aiming to focus on its several applications, viz., biofuel production, aquaculture, pharmaceuticals, and nanotechnology.

### Skills and Expertise

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|-----------------------------------|-----------------------|
| • Light Microscopy                | • Diatoms             |
| • Polymerase Chain Reaction (PCR) | • Diatom Taxonomy     |
| • DNA Extraction                  | • Diatom typification |
| • Gel Electrophoresis             | • Algal culturing     |
| • DNA Sequencing                  | • Diatom systematics  |
| • DNA Sequence Analysis           | • Diatom phylogeny    |

### Research Interests

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- Cultivation of microalgae utilising various media and culturing techniques.
- An Integrative approach of morphology, ecology and molecular sequence data to understand taxonomy and evolutionary relationships of microalgae.
- DNA barcoding in microalgae (especially diatoms) for identification and discovery.
- Revisiting Herbarium collections to resolve nomenclatural issues as well as emend diagnosis and descriptions intending to create a modern Diatom flora from India.
- Exploration of high lipid-yielding microalgae as liquid fuel precursors.

## Academic Qualifications

Degree	Ph.D.	M.Sc.	B.Sc.	H.S.C.	S.S.C.
University	Savitribai Phule Pune University, Pune (Agharkar Research Institute, Pune)	Savitribai Phule Pune University, Pune.	Swami Ramanand Teerth Marathwada University, Nanded.	State board of Maharashtra	State board of Maharashtra
Key Subject	Botany	Botany	Microbiology Chemistry Botany	Science	Science
Duration (years)	June 2018- November 2024	July 2014- May2016	June 2011- April 2014	June 2009- Feb 2011	June 2008- March 2009
Grade	-	'A'	'O'	'A'	'O'
% of marks	-	76.23	84.38	78.83	87.38

## Projects

B.Sc. Project (2014) "Aerobiology sampling of Dayanand Vegetable Market, Latur, Maharashtra"

M.Sc. Project (2016) "Anti-diabetic and Anti-oxidant activity of *Gymnema sylvestre* R. Br."

## Academic Achievements

- Ranked 1<sup>st</sup> for Botany Subject in Bachelor's Degree from Rajarshi Shahu Mahavidyalaya Latur, 2014.
- Qualified GATE-XL Life Science, 2015.
- Qualified CSIR-NET JRF December, 2016 AIR-84.

## Research Experience

- Position Junior Research Fellow (JRF) (Official)  
Project title "Diatom Herbarium and Culture Collection at ARI"  
Duration (July 2017- April 2018)  
Institution Agharkar Research Institute, Pune, Maharashtra.
- Position Project assistant (side project, unofficial)  
Project title "Diatom and cyanobacteria flora of Peninsular India: molecular reinvestigation of endemic and cosmopolitan taxa across biodiversity hotspot (Western Ghats)"  
Duration (May 2018 - June 2019)  
Institution Agharkar Research Institute, Pune, Maharashtra.

## Awards

- Award of Junior Research Fellowship (JRF) by the Council for Scientific and Industrial Research (CSIR), Human Resource Development Group, New Delhi, India.  
CSIR Sanction Letter No. - 09/670(0081)/2018-EMR-I dated 26/04/2018.
- Award of International Foreign travel grant by the Council for Scientific and Industrial Research (CSIR), Human Resource Development Group, TG/Symposium Grant Unit, New Delhi, India.  
CSIR Sanction Ref No. - TG/12196/23-HRD dated 22/08/2023.

## Ph.D. thesis title, Guide's Name, Institute/Organization/University, Year of Award

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PhD thesis title - "Systematics and Biogeography of the genus *Stauroneis* Ehrenberg (Bacillariophyceae) from the Indian subcontinent"

Guide's name - Dr. Karthick Balasubramanian

Institute - Agharkar Research Institute, affiliated to Savitribai Phule Pune University, Pune, Maharashtra, India

Year of Award - 07.11.2024

## Scientific Publications

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### In review

1. Yogeshwaran M, Mital Thacker, **N Wadmare**, A Vigneshwaran, C Radhakrishnan, S Pardhi, & B. Karthick\* (In review) Review of soil diatoms and their applications as an indicator of environmental changes. *Applied Soil Ecology*.

### Published

1. **N Wadmare**, Bart Van de Vijver, B. Karthick (2023). What is the real *Stauroneis acuta* W.Smith? A critical analysis of the type material and taxonomic revision of the Indian *Stauroneis acuta* complex (Bacillariophyta) with the separation of two new species. *Nova Hedwigia*. 117 (14): 351–380. DOI: 10.1127/nova\_hedwigia/2023/0844
2. Vigneshwaran A, **N Wadmare** & B. Karthick (2022). A new species of *Hippodonta* Lange-Bertalot, Metzeltin & Witkowski (Bacillariophyceae, Naviculales) from the Western Ghats, India. *Phytotaxa*, 558 (2): 219–228. DOI: 10.11646/phytotaxa.558.2.5
3. **N Wadmare** & B Karthick (2022). Revisiting two *Stauroneis* Ehrenberg (Bacillariophyta) from H. P. Gandhi's Diatom collection: Notes on Ultrastructure, Types and Nomenclature. *Phytotaxa*, 555(1): 42–52. DOI: 10.11646/phytotaxa.555.1.3
4. **N Wadmare**, A Baghela, JP Kociolek & B Karthick (2022). Description and Phylogenetic Position of Three New Species of *Stauroneis* Ehrenberg (Bacillariophyceae: Stauroneidaceae) from the Indian Subcontinent. *European Journal of Phycology*, 57 (1): 48–67. DOI: 10.1080/09670262.2021.1888390
5. **N Wadmare**, JP Kociolek & B Karthick (2021). Three new species of the genus *Stauroneis* Ehrenberg (Bacillariophyceae: Stauroneidaceae) from the Northern Western Ghats, India. *Fottea, Olomouc*, 21(2): 220–234. DOI: 10.5507/fot.2021.007
6. **N Wadmare**, S Roy, JP Kociolek, & B Karthick (2019). Two new aerophilic species of *Stauroneis* Ehrenberg (Bacillariophyta) from the Eastern Himalayas. *Botany Letters*, 166 (2): 234–245. DOI: 10.1080/23818107.2019.1602786

## Presentations and Conference abstracts

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1. Participated and presented poster in an International Diatom Symposium 2021 entitled “**Revisiting *Stauroneis acuta* W. Smith and related taxa from Peninsular India**” scheduled online held at Japan from 23<sup>rd</sup>–25<sup>th</sup> August, 2021.
2. Participated and submitted the research story “**Microbes on maps to fill gaps: A case study using diatoms**” under AWSAR (Augmenting Writing Skills for Articulating Research) program, 2021 on Popular Science Writing organised by the Department of Science and Technology (DST), Government of India and Vigyan Prasar (VP).

3. Participated and presented an oral presentation entitled “**Appearances are deceptive: The *Gomphonema parvulum* complex with one name and many faces**” in the student Online symposium- 2020 (SOS-2020) organised by MACS – Agharkar Research Institute, Pune from 29<sup>th</sup> September–1<sup>st</sup> October, 2020.
4. Appreciated by MACS-Agharkar Research Institute, Pune for the contribution to the “ARI Vidnyan Vardhini” Channel for popularisation of Science, National Science Day, 28<sup>th</sup> February, 2020.
5. Participated and presented a poster in a National conference on “**Aquatic Ecosystems: Sustainability and Conservation**” organised by the Indian Institute of Science Education and Research (IISER) Pune with support from MGBP, RGSTC, Government of Maharashtra, on 20<sup>th</sup> and 21<sup>st</sup> December, 2019.
6. Participated and presented a poster entitled “**Prof. Shankar Purushottam Agharkar**” organised by Agharkar Research Institute, Pune on National Science Day 28<sup>th</sup> February, 2019.
7. Attended a two days UGC Sponsored National Conference on “**Plant Pathology**” Organised by Department of Botany, Rajarshi Shahu Mahavidyalaya, Latur from 2<sup>nd</sup>–3<sup>rd</sup> March, 2014.
8. Attended a UGC Sponsored State Level Seminar on “**Exploring Horizons in Microbial Technology**” Organised by Department of Microbiology, Rajarshi Shahu Mahavidyalaya, Latur held on 21<sup>st</sup> January, 2012.

#### **Workshops/Conferences/Seminars attended**

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1. Attended and successfully completed nine days online short-term course on “**Biostatistics: A User’s Perspective**” organised by IISER Pune, between 10<sup>th</sup> to 18<sup>th</sup> December 2022.
2. Organised two weeks SERB-DST Karyashala Sponsored workshop on ‘A field and lab-based workshop on Biomonitoring of rivers using diatoms’ and delivered talks entitled “**Molecular advancements in Taxonomy and Phylogeny of diatoms**” and “**Symmetrical biraphid diatoms**” organised by Agharkar Research Institute, Pune during 18<sup>th</sup>–29<sup>th</sup> July, 2022.
3. Organised a week summer school workshop on ‘Diatom Taxonomy and Ecology of Freshwater Diatom’ and delivered talks entitled “**Molecular advancements in Taxonomy and Phylogeny of diatoms**” and “**Symmetrical biraphid diatoms**” organised by Agharkar Research Institute, Pune during 16<sup>th</sup>–20<sup>th</sup> May, 2022.
4. Attended a four days online workshop on “**Multivariate data analysis using PAST**” organised by Biologia Life Science LLP, Ahmednagar during 10<sup>th</sup>–13<sup>th</sup> May, 2021.
5. Actively participated in the UGC STRIDE Workshop on “**Molecular Phylogeny and Molecular Docking**” held from 19<sup>th</sup> January, 2021 to 27<sup>th</sup> January, 2021 at the Mizoram University, Aizawl, Mizoram and obtained grade A.
6. Attended a six days online workshop on “**Fundamentals of Molecular Phylogenetics**” organised by Centre for Ecological Sciences, Indian Institute of Science, Bangalore during 18<sup>th</sup>–23<sup>th</sup> July, 2020.
7. Participated in AWSAR (Augmenting Writing Skills for Articulating Research) Webinar on Popular Science Writing organised by the Department of Science and Technology (DST), Government of India, and Vigyan Prasara (VP) held on July 22, 2020.
8. Attended a two days online workshop on “**The Do’s and Don’ts of Scientific publishing**” organised by Biologia Life Science LLP, Ahmednagar during 4<sup>th</sup> and 5<sup>th</sup> June, 2020.
9. Attended a five days workshop on “**Molecular Phylogenetics**” at Centre for Ecological Sciences, Indian Institute of Science, Bangalore from 1<sup>st</sup>–5<sup>th</sup> October, 2019.

10. Attended a five days workshop on "**Molecular Taxonomy**" at Institute of Life Sciences Bhubaneswar, Odisha under the network 'Bio resources and Sustainable Livelihoods in North-East India' from 11<sup>th</sup>-15<sup>th</sup> March, 2019.

#### Extra- curricular activities

Painting, Sketching, Gyming, Dancing, Reading. Accomplished Bronze medal for the challenging Katraj to Sinhagad Night trek in Pune, India (2015), and successfully conquered the peaks of Kalsubai (1,646 m elevation) in 2017 and Ratangad (1,297 m elevation) in 2022, showcasing my passion for adventurous trekking.

Computer skills	Software handling	Languages
MS Office- Word, Excel, PowerPoint	Phylogenetic tools- MEGA, PAUP, IQ-TREE, Jmodel test, MrBayes	English Hindi Marathi
Literature search and Reference Management	Inkscape, GIMP, Photoshop, ImageJ, Zotero, Mendeley, PAST, Basic QGIS for Mapping	

#### References

**Dr. Karthick Balasubramanian**

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