Soil Profile Of *Dicranopteris Linearis* (Burm.F) A Terrestrial Fern From North Western Ghats (India)

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Abstract
Ferns are very good ecological indicators providing natural resource management. They require specific types of climatic conditions to grow well in nature. In the present paper, microclimatic factors of *Dicranopteris linearis* are taking into consideration.

Keywords: Ferns, Microclimate, Resource, *D. Linearis*.

Introduction

For the survival of species in an ecosystem, plants require specific and ecological niche to establish itself successfully. In many cases ferns are more specific indicators of the conditions they need than flowering plants (Nicholls & Nicholls, 1999-2009). In the present investigation, the ecological characters of soil of *D. linearis* like pH, E.C., Moisture, water holding capacity were studied from Castlerock. Castlerock is famous for the richness of this flora. The marked climatic differences between this area is sufficient to account for most of the differences in fern diversity. Thus an attempt has been made to study the soil profile in relation to ecological characters of soil in *D. linearis.*

D. linearis is a terrestrial fern with slender rhizome creeping with long internodes. The underside of Pinnae is shiny which attracts our attention. Inorganic constituents in soil play a major role in the metabolism of plants. Thus in the present investigation an attempt has been made to study relationship between the amount of inorganic constituents and
soil composition.

Material and Methods:

A. Materials: In the present investigation *D. linearis* (Burm.F) Underwood is a terrestrial fern collected from Northern Westerrn Ghat area particularly from Castle Rock in the rainy season along with soil.

B. Methods: Temperature and humidity were measured with the help of a thermo-hygrometer (M288CTH) Soil conductivity was measured using an EC meter (Systronics 304) and pH by pH meter (APX 175E). Soil organic matter content was determined by the modified method of Walkley & Black (1935).

Result And Discussion:

We have analyzed the soil sample of this species for the purpose of establishing microclimatic conditions of the species. The range of pH, moisture and EC are shown in table no.1.

As the soil supplies the required nutrients to growing plants it should be in a good physical conditions to allow good plant growth. It must be sufficient to ensure a proper supply of air and water. (Trivedy *et. al.*1987). It is clear from the data that *D.linearis* prefers slightly alkaline soil. The electrical conductivity is 0.48 mmhos /cm and moisture percentage is 19.63 %. This fern prefer high level of moisture and high organic matter. Among the microelements, potassium and nitrogen contents are found to be more than the other elements. Soil is low in Ca, Mg, Na. These may be the favorable microclimatic conditions for the establishment and occurrence of this fern. Potassium is the most important micronutrient for plant growth. The shiny appearance of underside of pinnae may be due to the potassium contents in soil.

Zn, Cu are micronutrients and hence they are required by the plants in minor quantities. It has been observed by Hou(1950) that the ecological distribution of fern allies may not be related to the supply of iron, phosphorous, calcium in the soil.

Sr.No.	Parameter	Unit	Value
1	pH		7.08
2	E. Conductivity	mmhos/cm	0.48
3	Moisture	%	19.63
4	Organic Carbon	%	0.015
5	Organic matter	%	52.74
6	Water Holding Capacity	%	52.74
	Macronutrient		
1	Nitrogen	Kg/ha	35.37
2	Phosphorus	Kg/ha	20.93
3	Potassium	Kg/ha	113.62
4	Calcium	%	0.096
5	Magnesium	%	0.0146
6	Sodium	%	0.14
	Micronutrient		
1	Iron	Ppm	2.46
2	Manganese	Ppm	0.734
3	Zinc	Ppm	0.628
4	Copper	Ppm	0.158
5	Molybdenum	Ppm	0.40
6	Boron	Ppm	0.31

The ecological characteristics of *Dicranopteris linearis* (Burm. F)Underwood

Table No. 1

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