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Exploration and season wise monitoring of Pteridophytes in Southern Western Ghats

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Abstract

Pteridophytes are preliminary vascular and seedless first land plants. The aim of the present study was exploration and season wise monitoring of pteridophytes from KMTR regions in the period from 2015-2016. The frequently field visit in every month of 2015-2016 periods, collected, taking photographs and identified. A total of fifty-eight species of pteridophytes identified. Which belongs to which belongs to 35genera and 32 families were authentically documented in KMTR regions, Southern Western Ghats, Tirunelveli and Kanyakumari District, Tamil nadu. The family of Pteridaceae was present in the dominant family in the study area of Tirunelveli and Kanyakumari District.

Keywords: Pteridophytes, Diversity, KMTR region, Sothern Western Ghats, Tirunelveli, Kanyakumari District,Tamil nadu.

1 INTRODUCTION

Pteridophytes assume an indispensable part in tropical ecosystem, especially in the rainforests, where it is evaluated that 65% of them happen. Pteridophytes, the seedless vascular plants, had an exceptionally prospering past in commanding the vegetation on the earth around 280-230 million years ago. There are about 12,000 species of pteridophytes occur in the world flora, of which 1,000 species in 70 families and 192 genera occur in the different parts of India. There are many species which can be useful and several medicines may be prepared. The medicinal qualities of ferns, real or imaginary, are mentioned as early as 300 B.C. by the Greek philosopher Theophrastus and by his Indian contemporaries Sushrut and Charak [1]. Now a day many ferns are in decline due to over exploitation and pollution. The collection of rare species of pteridophyte from the forest is to be stopped and as such species are to be grown in the gardens under proper habitat to save and increase their numbers. Generally, it is observed that the college students collect rare plants from the forests areas viz., *Lycopodium*, *Selaginella*, and *Psilotum* species. The major biotic causes are the living space decimation through wanton leeway of woods, urbanization, contamination, and furthermore the unsettling influence in their normal natural surroundings because of tourism and journey. The natural surroundings necessity of Ferns and partners, when all is said in done, is very restricted as a result of their extraordinary reliance on outer supply of water for preparation. Indeed, even extraordinary plants networks have their own particular inclinations. For instance, unique microclimates to epiphytic in connection to the heading of light source, the same in connection to winning breeze and their tendency give diverse microclimates to epiphytic or epiphyllous networks. A definite review of plants is in this way fundamental before they wind up wiped out and important to keep up and monitor the districts of their separate territories. The aim of the present was exploration and season wise monitoring of pteridophytes in KMTR region.

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2. MATERIALS AND METHODS

Intensive field explorations were carried out in the Tirunelveli and Kanyakumari Region of Southern Western Ghats during the year 2015-2016, to document the ferns and fern-allies. The collected plants were identified with the help of several authors[2-3].

3. RESULTS AND DISCUSSION

In the present study was based on a survey and collection of field trips to various localities in KMTR regions. In the study area, 58 species of pteridophytes were collected and identified, which belongs to 35 genera and 32 families represented in the Table-1. The dominant species of Pteridiace family identified, followed by Huperiaceae and dryopteridace respectively. The majority of the ferns are terrestrial, epiphytic, and two are hydrophytic species. These species grow on exposed areas, shady areas, stream banks, hill slopes, tree trunks, and bare or mossy rocks. Vegetation including semi-evergreen and evergreen forest is one of the important localities in the study area for Pteridophytes. Most of the species showed luxuriant growth during rainy season while the retarded growth was observed in winter season. Earlier studies, our results supported for the several authors reported that most of the species enlisted in this survey and also given their ecological data in relation to their habit and habitats [4-6]. Present study, both seasons observed that high numbers of pteridophytes species occurred and well grown in the winter season. Low number of Pteridophyte species observed in summer seasons. Most of the pteridopytes species disappeared in the summer seasons. For the reason for well documented in the previous authors [7]. Perring and Farrell (1977) well documented for key factors, particularly biological factors, such as rhizome type (erect or creeping), ploidy level (diploid or polyploid), the nature of the spores (chlorophylls or achlorophyllous) and ecological factor such as habitats, (epiphyte / lithophyte or terrestrial), responsible for the rarity of ferns and fern allies were identified and applied for the assessment of rare and endangered ferns and fern allies of the Southern Western Ghats [8-9].

Ex situ conservation of Pteridophytes was very easy, collection spores were dispersed in different location of KMTR regions. Huperzia species were easily growing on regeneration of nodal cultures in ex situ method. The conclusion of the present study observed that 58 species were recorded in the KMTR regions. The dominant species of Pteridaceae was recorded. It was observed that most of the ferns are growing well in nature at 25-30ºC temperature, more than 85% relative humidity and moderate light intensity. The data are therefore important in the conservation of species which are rare and endangered. In the present investigation, it was observed that the three species are rare and two were endangered from the study area. The present study was very helpful for identification of luxurious growth of ferns in Western Ghats regions, which are important for their academic, medicinal and ornamental purposes.

Table -1: Season wise monitoring of Pteridophytes in KMTR regions, Southern Western Ghats in Tirunelveli and Kanyakumari District

Sl.No	Pteridophytes	Current Status	Family	No of Family/ Species	Year 2015-2016 Growth Status			
					Jan-Mar	Apr-May	Jun-Aug	Sep-Dec
1.	*Azolla pinnata* R. Brown	Common	Salviniaceae	1 (2)	++	+	+	++
2.	*Salvinia molesta* Mitchell.	Common			++	+	+	++
3.	*Selaginella delicatala* (Desv.exPoir) Alston	Rare	Selaginellaceae	1(2)	++	+	+	++
4.	*Selaginella tenera* (Hook. & Grev.) Spring	Rare			++	+	+	++
5.	*Marsilea minuta* L.	Common	Marsileaceae		++	++	++	++
6.	*Huperzia phyllantha* (Hook.f.&Arn.)	Rare	Huperziaceae	1(4)	++	+	+	++

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7.	Huperzia hamiltonii (spreng.) Trevis	Rare			++	+	+	++
8.	*Huperzia squarrosa* (G. Forst.) Trev.	Rare			++	+	+	+
9.	*Huperzia serrata* (Thunb.) Trev]	Rare			++	+	+	+
10.	*Adiantum caudatum* L.	Common	Pteridaceae	1(12)	++	+	+	+
11.	*Adiantum capillus*-veneris L.	Common			++	+	+	+
12.	*Adiantum hispidulam* Sw.	Common			++	+	+	++
13.	Adiantum incisum Forssk.	Common			++	+	+	++
14.	*Adiantum latifolium* Lam.	Common			++	+	+	++
15.	*Adiantum lunulatum* Burm.	Common			++	+	+	++
16.	*Adiantum raddianum* Presl.	Common			++	+	+	++
17.	*Acrostichum aureum* L.	Common			++	+	+	++
18.	*Pteris quadriaurita* Retz.	Common			++	+	+	+
19.	*Pteris pellucida* C.Presl	Common			++	+	+	+
20.	*Pteris vittata* L.	Common			++	+	+	+
21.	*Pteris ensiformis* Burm. f.	Common			++	+	+	+
22.	*Actiniopteris dichotoma* Kuhn.	Common	Actinopteridaceae.	1(1)	++	+	+	++
23.	*Angiopteris evecta* (Frost.) Hoff.	Common	Angiopteridaceae	1(1)	++	+	+	++
24.	*Asplenium falcatum* Lamk.	Common	Aspleniaceae	1(3)	++	+	+	++
25.	*Asplenium nidus* L.	Rare			++	+	+	++
26.	*Asplenium polydon* G. Forster	Rare			++	+	+	++
27.	*Athyrium hohenkarianum* (Kunze) Moore.	Rare	Woodsiaceae	1(1)	++	+	+	++
28.	*Blechnum orientale* L.	Common	Blechnaceae	1(1)	++	+	+	+
29.	*Ceratopteris thalictroides* (L.) Brougn.	Common	Sinopteridaceae	1(3)	++	+	+	+
30.	*Cheilanthes farinosa* (Burm. f.) Sw.	Common			++	+	++	+
31.	*Cheilanthes tenufolia* (Burm. f.)Sw.	Common			++	+	++	+
32.	*Christella parasitica* L.	Common	Thelypteridaceae.	1(1)	++	+	++	+

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33.	*Cyathea gigantea* (Wall. ex Hook.) Holttum	Very Rare	Cyatheaceae	1(2)	++	+	++	+
34.	*Cyathea spinulosa* Wall	Rare			++	+	++	+
35.	*Cyclosorus interrupts* Willd.	Common	Thelypteridaceae	1(1)	++	+	++	+
36.	*Dicranopteris linearis* (Burm. f.) Underwood	Rare	Gleicheniaceae	1(1)	++	+	+	+
37.	*Diplazium esculantum* (Retz.) Sw. Schrad.	Common	Athyriaceae	1(1)	++	+	+	+
38.	*Dryopteris cocheata* (Buch-Ham ex Don) C. Chr	Common	Dryopteridaceae	1(1)	++	+	+	+
39.	*Drynaria quercifolia* (L.) J. Sm	Common	Polypodiaceae	1(1)	++	+	+	+
40.	*Hemionitis arifolia* (Burm. f.) Moore	Common	Hemionitidaceae	1(1)	++	+	+	+
41.	*Hypodematium crenatum* L	Common	Dryopteridaceae	1(1)	++	+	+	+
42.	*Lygodium flexuosum* (L.) Sw.	Common	Lygodaceae	1(1)	++	+	+	+
43.	*Lindsaea heterophylla* Dryand.	Common	Lindsaeaceae	1(1)	++	+	+	+
44.	*Marattia fraxinea* Sm.	Common	Marattiaceae	1(1)	++	+	+	+
45.	*Microsorium puntuatum* (Linn.) Copel.	Common	Polypodiaceae	1(1)	++	+	+	+
46.	*Nephrolepis cordifolia* (L.) Presl	Common	Nephrolepidaceae	1(2)	++	+	+	+
47.	*Nephrolepis exaltata* (L.) Schott.	Common			++	+	++	+
48.	*Odontosoria chinensis* (L.) J. Smith	Common	Lindaseaceae	1(1)	++	+	++	+
49.	*Oleandra musifolia (Bl.) Presl.*	Common	Oleandraceae	1(1)	++	+	++	+
50.	*Ophioglossum reticulatum* L.	Rare	Ophioglossaceae	1(1)	++	+	++	+
51.	*Osmunda regalis* L	Common	Osmundaceae	1(1)	++	+	++	+
52.	*Pityrogramma calomelanos* L.	Common	Hemionitidaceae	1(1)	++	+	++	+
53.	*Pteridium aqualinum* (L.) Kuhn.	Common	Dennstaedtiaceae	1(1)	++	+	+	+
54.	*Tectaria zeylanica* Sledge	Rare	Dryopteridaceae	1(4)	++	+	+	+
55.	Tectaria cicutarium Cop. (J. Sm.) C. Chr.	Rare	Dryopteridaceae		++	+	+	+
56.	*Tectaria wightii* (Clarke) Ching.	Rare	Dryopteridaceae		++	+	+	+
57.	*Elaphoglossum beddomei* Sledge	Rare	Dryopteridaceae		++	+	+	+
58.	*Vittaria elongata* Sw.	Common	Vittariaceae	1(1)	++	+	+	+

4. ACKNOWLEDGMENT

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