

Pteridophytic survey in agumbe forest of central western ghats, Karnataka

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SUMMARY

A total of 22 species were enumerated in Someshwara ghat, lying in the Central Western Ghats. It has evergreen, semi-evergreen and moist deciduous forests. So far, no attempt has been made for any comprehensive study of the Indian fern flora in the country when compared to that of the higher plants. Viewed in this context the present work is an attempt to document the pteridophyte floristic diversity in someshwar ghat of Agumbe forest.

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Pteridophytes form a conspicuous element of vegetation as intermediate between the lower cryptogams and higher vascular plants with long geological history on the planet. There are about 12,000 species recorded globally. India has a rich and varied pteridophytic flora due to the varied nature of topography, variable climatic conditions and its geographical positions. However, there are about 1000 species belonging to 70 families and 191 genera in India (Dixit, 1990; Chandra *et al.*, 2008). Manickam and Ninan (1976) have described present pteridophytic flora of south Indian peninsula including ecology distribution, synonymy and nomenclature of Indian pteridophytes. Khullar (1994, 2000) reported 360 fern species in his *Illustrated Fern Flora of Western Himalaya*, with 399 pteridophytes given by Fraser-Jenkins (2010), which included fern allies. Western ghats harbors 349 pteridophytic species out of 1100-1200 species of ferns and fern allies in India (Manickam and Irudayaraj

et al., 1992).

The western ghat region includes Agumbe forest as a diversity center of this region; it has evergreen, semi-evergreen and moist deciduous forests. Present survey was carried out in Someshwara ghat of Agumbe forest. It is located in Udapi district, the major portion from 13° 29' to 13° 37' N latitude and 74° 59' to 75° 05' E longitude and the smaller portion from 13° 28' to 13° 31' N latitude and 74° 56' to 75° 00' E longitude. Altitudes vary from 75 to 870 m, temperature range from 20 to 37°C, and mean annual rainfall is 6000 mm. The tree of the evergreen forests includes *Terminalia paniculata* Roth, *Machilus macrantha* Nees, *Lophopetalum wightianum* Arn., *Mangifera indica* L., *Hopea parviflora* Bedd., *Artocarpus hirsute* Lam. and *Cinnamomum zeylanicum* Bl. The moist deciduous forests are represented by *Dalbergia latifolia* Lam., *Terminalia tomentosa* W. and A., *Lagestroemia lanceolata* Wall., *Dillenia pentagyna* Roxb. and *Careya arborea* Roxb. Apart from plantations of teak, eucalyptus, casurina and cashew, there are also some mixed plantations of native species such as Bombax, Sterculia, Ailanthus. Pteridophytic studies in Agumbe are still in an infant stage. Except angiosperms there has been no comprehensive systematic work on lower cryptogams of Agumbe region. So, far as Someshwar ghat is concerned, it is practically unexplored. This prompted the taking up of the present study.

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MATERIALS AND METHODS

A survey of Pteridophytes in Someshwara ghat of Agumbe forest was conducted during the period of 2008-2009. Diagnostic features of all the specimens were studied and relevant field notes were made on fresh plant

materials. Identification of specimens were made by referring to available literature and Pteridophyte floras (Beddome, 1863, 1883, Blatter and D'Almeida, 1922 and Manickam and Iradayaraj, 1992). All the collected specimens were properly processed and the herbariums have been deposited in the Department of Applied Botany, Kuvempu University, Shankaraghatta. For nomenclature, Fraser-Jenkins (2010) has been followed.

RESULTS AND DISCUSSION

A total of 22 species belonging to 14 families were reported from several regions of Agumbe forest. The species were alphabetically arranged with herbarium number and distribution pattern (Table 1). Out of these the dominant families are Pteridaceae (4), Dryopteridaceae (3), Polypodiaceae (3) and Adiantaceae (2). The family Pteridaceae represented by 4 species. Two families Polypodiaceae and Dryopteridaceae are represented by 3 species. Another two families Adiantaceae and Lycopodiaceae are represented by two species. Eight families are represented by single species.

The dominant genera were *Adiantum*, *Athyrium*,

Odontosoria and *Pityrogramma*. The majority of species (16) reported as terrestrial followed by epiphytic (4) and lithophytic (1). *Lygodium flexosum* (L.) Sw. and *Cyathea gigantean* (Wall. Ex Hook.) Holttum are interesting climbing and tree fern, respectively. One of the threatened species *Pteris vittata* L. was also recorded with three rare species such as *Aleuropteris anceps* (Blanf.) Panigrahi, *Lygodium flexosum* (L.) Sw and *Osmunda regalis* L. in the study area.

In recent year's human activities by way of destruction of biota and natural habitats have accelerated the process of extinction to an alarmingly faster rate. Since these plant species are being exploited from forest area due to further phytochemical and pharmacological investigation. Which might result in the discovery of new drugs for human welfare so, there is an urgent need for their conservation before they get extinct. The present study serve as a precursor for relevant to conservation and further additions could be possible with further botanical exploration of the various unexplored areas of the country.

Table 1 : Summarized data on diversity and habitat of different species of ferns from Agumbe Forest

Sr. No.	Species name and Herbarium no.	Family	Habitat	Status
1.	<i>Adiantum philippense</i> L. (KU/TT/09-DPN03)	Adiantaceae	Terrestrial	C
2.	<i>Adiantum capillus-veneris</i> L. (KU/TT/09-DPN02)	Adiantaceae	Terrestrial	C
3.	<i>Aleuropteris anceps</i> (Blanf.) Panigrahi (KU/TT/09-DPN22)	Pteridaceae	Terrestrial	R
4.	<i>Angiopteris helferiana</i> C.Presl (KU/NT/09-DPN21)	Marattiaceae	Terrestrial	C
5.	<i>Asplenium phyllitidis</i> D. Don (KU/TT/10-DPN40)	Aspleniaceae	Epiphytic	O
6.	<i>Arachniodes tripinnata</i> (Goldm.) Sledge (KU/ST/11-DPN34)	Dryopteridaceae	Terrestrial	C
7.	<i>Athyrium falcatum</i> Bedd. (KU/CT/09-DPN12)	Woodsiaceae	Terrestrial	C
8.	<i>Blechnum orientale</i> L. (KU/ST/09-DPN06)	Blechnaceae	Terrestrial	C
9.	<i>Cyathea gigantean</i> (Wall.ex Hook.) Holttum (KU/NT/09-DPN11)	Cyatheaceae	Terrestrial	U
10.	<i>Drynaria quercifolia</i> (L.) J.Sm. (KU/NT/09-DPN01)	Polypodiaceae	Epiphytic	C
11.	<i>Huperzia hamiltonii</i> (Spreng.) Trevis (KU/ST/11-DPN31)	Lycopodiaceae	Lithophytic	F
12.	<i>Lepisorus nudus</i> Hook. (KU/TT/09-DPN08)	Polypodiaceae	Epiphytic	O
13.	<i>Lycopodium cernuum</i> L. (KU/TT/10-DPN36)	Lycopodiaceae	Terrestrial	O
14.	<i>Lygodium flexosum</i> (L.) Sw (KU/MT/09-DPN13)	Schizaeaceae	Climber	R
15.	<i>Microsorosum zippelii</i> (Blume) Ching (KU/TT/09-DPN14)	Polypodiaceae	Epiphytic	O
16.	<i>Odontosoria tenuifolia</i> (Lam.) J. Sm (KU/TT/09-DPN18)	Lindsaeaceae	Terrestrial	C
17.	<i>Osmunda regalis</i> L. (KU/TT/10-DPN41)	Osmundaceae	Terrestrial	R
18.	<i>Pityrogramma calomelanos</i> (L.) Link (KU/ST/11-DPN28)	Pteridaceae	Terrestrial	F
19.	<i>Pteris pellucida</i> Presl (KU/NT/09-DPN16)	Pteridaceae	Terrestrial	C
20.	<i>Pteris vittata</i> L. (KU/KT/09-DPN17)	Pteridaceae	Terrestrial	En/F
21.	<i>Tectaria coadunata</i> (J. Smith) C. Chr (KU/TT/09-DPN25)	Dryopteridaceae	Terrestrial	F
22.	<i>Tectaria polymorpha</i> (Wall.ex Hook.) Copel. (KU/ST/09-DPN07)	Dryopteridaceae	Terrestrial	U

C= Common; En=Endangered; U= Uncommon; R=Rare; F= Frequent

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