



A FLORISTIC ANALYSIS OF THE AQUATIC, MARSHY & WETLAND PLANTS OF IDUKKI DISTRICT, KERALA, INDIA

¹Rajilesh, V.K, ²Anoop, K.P, ³P.V.Madhusoodanan, ⁴R Ansari and ⁵R. Prakashkumar

^{1,2}Research Fellow, Malabar Botanical Garden and Institute for Plant Sciences, P.B.No.1, Kozhikode, Kerala, India 673 014

³Emeritus Scientist, Malabar Botanical Garden and Institute for Plant Sciences, P.B.No.1, Kozhikode, Kerala, India 673 014

⁴Scientist, Malabar Botanical Garden and Institute for Plant Sciences, P.B.No.1, Kozhikode, Kerala, India 673 01


⁵Director, Malabar Botanical Garden and Institute for Plant Sciences, P.B.No.1, Kozhikode, Kerala, India 673 014

ABSTRACT: The present compilation of aquatic and wetland plants of Idukki District includes 259 species, of which 22 species are under Rare, Endangered, Vulnerable and Threatened categories of IUCN conservation status and 35 species are endemic to Western Ghats. These fast depleting ecosystems demand special attention for urgent conservation procedures.

Key words: Idukki, Aquatic, Marsh, Angiosperms.

*Corresponding author: R. Prakashkumar. Director, Malabar Botanical Garden and Institute for Plant Sciences, P.B.No.1, Kozhikode, Kerala, India 673 014

E-mail: rprak62@gmail.com; mobile: +91-9446556113

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INTRODUCTION

Wetlands are fragile ecosystems, with special kind of vegetation. These are essentially important in maintaining equilibrium of different ecosystems, hence demand special attention and should be conserved. Unfortunately they are under threat due to human interventions and are depleting at a fast pace all over the world.

In India, several studies on aquatics as well as marshy flowering plants have been carried out by Biswas & Calder (1937)[2]; Misra (1946)[7]; Mirashi (1954)[6]; Maheshwari (1960) [5]; Subramanyam (1962)[11] and recently by Cook (1996)[3]. In Kerala, studies carried out by Ramachandran *et al* (1988)[9]; Joseph(1991)[4]; Ansari (2010)[1]; Sasidhran (2004)[10] and Nayar *et al* (2006)[8] explored many of the districts for its plant wealth and many district floras have been published from time to time, but little attention has been paid by earlier workers to the study of marshy and aquatic flowering plants of the Idukki district so far; Therefore a thorough exploration has been made systematically in the wetlands of Idukki district.

Idukki is the second largest district of Kerala state and has a total geographic area of 4,998 sq km; rugged mountains and forests cover about 97 per cent of the total area of the district. This district is blessed with protected areas like Periyar Tiger Reserve and Pampadum Shola National Park in the South, Kurinjimala Sanctuary in the East, Chinnar Wild life Sanctuary in the North east, Eravikulam National Park and Anamudi Shola National Park in the North, Thattekad Bird Sanctuary in the West. The district borders Pathanamthitta to the South, Kottayam to the Southwest, Ernakulam to the North west, Thrissur to the north and Coimbatore, Dindigul and Theni districts of the Tamil Nadu State to the East. Anamudi, the highest peak is in the Kuttampuzha Panchayat of Adimali Block, 13 other peaks in the district exceed a height of 2,000 m above sea level. Important rivers of the district are Periyar, Thodupuzhayar and Thalayar. Idukki the hilly district of the state has many unique topographical and geographical characteristics.

The wetland area estimated is 10655 ha, which includes 92 small wetlands (< 2.25 ha.) in the district. The major wetland types are River/Stream, Reservoirs/Barrages, and Lakes/Ponds. Analysis of wetland status in terms of open water and aquatic vegetation showed that around 96 and 93 percent of wetland area is under open water category during post-monsoon and pre-monsoon respectively. Aquatic vegetation (floating/emergent) occupies around 5 and 1 per cent of wetland area during post and pre-monsoon respectively. Qualitative turbidity analysis of the open water showed that low and moderate turbidity prevails. There are few natural lakes in the district, such as Eravikulam, Devikulam lakes in Devikulam Taluk and Elavizhapunchira in Thodupuzha Taluk. Two types of soil are found in the district; the highland area is covered by forest soil or alluvial soil and the other parts by laterite soil.

Temperature of the western region (midland area) varies between 21° to 27°C, while the eastern parts located in the high land have a cold climate with temperature varying between 1°C to 15°C. Annual rainfall in the district varies from 250 to 425 cms. The western region of Devikulam Taluk gets more rain fall, which goes even up to 500 cms/ annum.

METHODS

During the last six years regular field explorations were conducted in aquatic, marshy and wetland areas of Idukki District and observed that there exists a luxuriant growth of aquatic, marshy and wetland plants. Through the survey and collection of specimens, the species existing in these areas were identified and documented.

RESULTS

The study resulted in the documentation of 259 species of flowering plants belonging to 51 families, (Table.1) from the study area which includes 47 pure aquatic and 212 marsh/wetland species. These plants are categorized as 20 submerged 15 anchored hydrophytes with floating leaves, 1 free-floating and 223 emergent-anchored hydrophytes. Among the total 259 species 22 species belong to RET categories of IUCN which are shown on table no. 2.

Table: 1 Aquatic, Marshy and Wetland plants of Idukki Dt. Kerala

Family	Plant Name	Habitat
Acanthaceae	<i>Hygrophila ringens</i> (L.) Steud.	Moist localities in the plains
	<i>Hygrophila schulli</i> (Buch.-Ham.) M. R. & S. M. Almeida.	Paddy fields and other moist localities
Amaranthaceae	<i>Alternanthera philoxeroides</i> (Mart.) Grisb.	Shallow water pools, ditches and marshes
	<i>Alternanthera sessilis</i> (L.) R. Br. ex. DC.	Along sides of water courses and marshy areas
Apiaceae	<i>Hydrocotyle sibthorpioides</i> Lam.	Marshy areas in grasslands
Apocynaceae	<i>Aganosma cymosa</i> (Roxb.) G. Don	Semi-evergreen forests, often along sides of streams
Araceae	<i>Acorus calamus</i> L.	Semi-aquatic and marshy localities
	<i>Ariopsis peltata</i> Nimmo	On wet rocks in evergreen forests
	<i>Colocasia esculenta</i> (L.) Schott	Waterlogged ditches and streamside
	<i>Cryptocoryne consobrina</i> Schott. CWightii	Near streams in dry deciduous forests
	<i>Cryptocoryne retrospiralis</i> (Roxburgh) kuwln	River banks and stream sides
	<i>Lagenandra meeboldii</i> (Engl.) Fischer	Marshy riversides
	<i>Lagenandra nairii</i> K. Ramamurthy	Stream sides
	<i>Lagenandra ovata</i> (L.) Thw.	Marshy areas and stream sides
	<i>Lagenandra toxicaria</i> Dalz. var. <i>toxicaria</i>	Along streams
	<i>Lagenandra toxicaria</i> Dalz. var. <i>barnesii</i> Fisch.	Marshy areas
	<i>Pistia stratiotes</i> L.	Marshy areas
	<i>Typhonium bulbiferum</i> Dalz. in Hook.'s	Wet places and grasslands
<i>Theriophonum infaustum</i> N.E. Br.	Moist deciduous forests, also in marshy areas	

Balsaminaceae	<i>Impatiens acaulis</i> Arn.	On moist rocks in grasslands
	<i>Impatiens anaimudica</i> C.E.C. Fisch.	Moist shady places and stream banks
	<i>Impatiens chandrasedkharanii</i> Chandrab.	On wet rocks in evergreen forests
	<i>Impatiens concinna</i> Hook.f.	Near water courses in grasslands
	<i>Impatiens cuspidata</i> Wight & Arn.	Evergreen forests, often along road sides
	<i>Impatiens laticornis</i> C.E.C. Fisch.	On tree trunks and wet rocks
	<i>Impatiens maculata</i> Wight	Along streams and marshes in evergreen forests
	<i>Impatiens munnarensis</i> Bame	Along the banks of streams
	<i>Impatiens nilgirica</i> C.E.C. Fisch.	Among grasses and on rocks
	<i>Impatiens pandata</i> Bames	On wet rocks in grasslands
	<i>Impatiens scapiflora</i> Heyne ex Roxb.	Wet rocks in evergreen forests and grasslands
Boraginaceae	<i>Rotula aquatica</i> Lour.	Rocky river beds
Brassicaceae	<i>Rorippa indica</i> (L.) Hiern	Marshy areas
Cabombaceae	<i>Cabomba caroliniana</i> Gray	Fresh water canals, ponds and rivers
Caryophyllaceae	<i>Polycarpon prostratum</i> (Forssk.) Asch. & Schweinf.	Marshy areas and wetlands in the plains
	<i>Sagina saginoides</i> (L.) Karsten	Marshy areas and wetlands in the plains
Commelinaceae	<i>Commelina clavata</i> Clarke, Comm.	Wet areas in moist deciduous forests
	<i>Cyanotis axillaris</i> (L.) D. Don	Wet areas in moist deciduous forests
	<i>Cyanotis fasciculata</i> (Heyne ex Roth) Schult. f.	On wet rocks Grasslands, among wet rocks
	<i>Cyanotis tuberosa</i> (Roxb.) Schult.f.	Grasslands, among wet rocks
Companulaceae	<i>Sphenoclea zeylanica</i> Gaertn.	Along water courses and Islands
Convolvulaceae	<i>Ipomoea hederifolia</i> L.	Along stream sides and degraded forest areas
	<i>Ipomoea wightii</i> (Wall.) Choisy	Moist deciduous forests
Cyperaceae	<i>Carex longicuris</i> Nees in Wight	Near water courses in semi-evergreen forests
	<i>Carex phacota</i> Spreng.	Marshy areas in evergreen forests
	<i>Cyperus compactus</i> Retz.	Wet low lands and as a weed in rice fields
	<i>Cyperus compressus</i> L.	Along banks of streams
	<i>Cyperus difformis</i> L.	Marshy areas and paddy fields
	<i>Cyperus exaltatus</i> Retz.	Wetlands and grasslands
	<i>Cyperus haspan</i> L.	Along banks of streams and marshy areas
	<i>Cyperus javanicus</i> Houtt.	Wetlands and grasslands
	<i>Cyperus michelianus</i> (L.) Link	Marshy areas
	<i>Cyperus nutans</i> Vahlssp. <i>eleusinoides</i> (Kunth) Koyama.	Marshy fields
	<i>Cyperus pangorei</i> Rottb.	Grasslands, river banks and pools
	<i>Cyperus pilosus</i> Vahl, Enum.	Riverbanks and grasslands
	<i>Cyperus procerus</i> Rottb.	Marshy areas
<i>Cyperus rotundus</i> L.	Marshy areas	

	<i>Cyperus tenuispica</i> Steud.	Along streams and marshy
	<i>Eleocharis acutangula</i> (Roxb.) Schult.	Marshy areas in grasslands
	<i>Eleocharis congesta</i> D. Don	Marshy areas in grasslands and banks of streams
	<i>Eleocharis dulcis</i> (Burm. f.) Trimen ex Hensch.	Marshy areas
	<i>Fimbristylis argentea</i> (Rottb.) Vahl	Wet or moist sandy grounds,
	<i>Fimbristylis cinnamometorum</i> (Vahl) Kunth.	Wet low lands and grassy slope
	<i>Fimbristylis dichotoma</i> (L.) Vahl.	riverbanks
	<i>Fimbristylis dipsacea</i> (Rottb.) Clarke in Hook. f.	Sandy seashore, river beds and paddy fields
	<i>Fimbristylis dura</i> (Zoll. & Moritz.) Merr.	Marshy areas in evergreen forests
	<i>Fimbristylis monticola</i> Hochst. ex Steud	Marshy areas in evergreen forests
	<i>Fimbristylis ovata</i> (Burm. f.) Kern.	Wet grasslands and marshy areas
	<i>Fimbristylis tenera</i> Schult.	Grasslands and wet rocky hills
	<i>Fuirena pomudiensis</i> Ravi & Anil Kumar.	Marshy areas in grasslands and stagnant pools
	<i>Fuirena umbellata</i> Rottb.	Wet places, marshy areas near rivers and rice fields
	<i>Hypolytrum nemorum</i> (Vahl) Spreng.	Marshy areas in grasslands
	<i>Kyllinga bulbosa</i> P. Beauv.	Marshy areas
	<i>Kyllinga odorata</i> Vahlssp. <i>cylindrica</i> (Nees ex Wight) Koyama	Marshy areas in degraded deciduous forests
	<i>Lipocarpha gracilis</i> (Rich.ex Pers.)Nees	Damp grassy places in the plains and wet fields
	<i>Lipocarpha squarrosa</i> (L.) Goetgh.	Marshy areas in grasslands, wet places
	<i>Pycreus fasciculatus</i> Govind.	Marshy areas in grasslands
	<i>Pycreus flavidus</i> (Retz.) Koyama	Marshy areas in grasslands
	<i>Pycreus polystachyos</i> (Rottb)	Marshy areas in grasslands
	<i>Pycreus sanguinolentus</i> (Vahl) Nees ex Clarke in Hook. f.	Marshy fields
	<i>Pycreus stramineus</i> Clarke in Hook. f.	Marshy places
	<i>Pycreus unioloides</i> (R. Br.) Urb. var. <i>angulatus</i> (Nees) Domin	Wet rocky areas in moist deciduous forests
	<i>Rhynchospora rugosa</i> (Vahl) Gale ssp. <i>brownii</i> (Roem. &Schult.) Koyama in Hara et al.	Marshy areas in grasslands
	<i>Schoenoplectiella articulata</i> (L.) Lye	Marshy areas in grasslands and wet fallow fields
	<i>Schoenoplectiella juncooides</i> (Roxb.) Lye	Marshy areas in grasslands
Droseraceae	<i>Drosera burmannii</i> Vahl.	Marshy areas in grasslands, degraded deciduous forests
	<i>Drosera indica</i> L.	Moist deciduous forests, also in the plains
	<i>Drosera peltata</i> Smith in Willd.	Grasslands
Eriocaulaceae	<i>Eriocaulon conicum</i> (Fyson) C.E.C. Fisch.	Marshy areas in grasslands
	<i>Eriocaulon eurypeplon</i> Koernicke.	Wet paddy fields
	<i>Eriocaulon longicuspis</i> Hook.f.	Swampy areas
	<i>Eriocaulon nepalense</i> Prescott ex Bong.	Marshy grasslands
	<i>Eriocaulon odoratum</i> Dalz.	Marshy grasslands
	<i>Eriocaulon quinquangulare</i> L.	Banks of streams, paddy fields and marshy lands
	<i>Eriocaulon sexangulare</i> L.	Marshy places
	<i>Eriocaulon stellulatum</i> Koernicke.	Banks of streams and lakes
	<i>Eriocaulon thwaitesii</i> Koernicke.	Moist and marshy places
	<i>Eriocaulon truncatum</i> Bunch.	Marshy grasslands
	<i>Eriocaulon vasudevianii</i> R. Ansari & N.P. Balakr.	Marshy grasslands

Euphorbiaceae	<i>Homonoia riparia</i> Lour.	Swampy areas
	<i>Mallotus resinusus</i> (Blanco) Merr.	Evergreen and semi-evergreen forests
	<i>Phyllanthus reticulatus</i> Poir. in Lam.	Stream banks, lake shores
	<i>Trewia nudiflora</i> L.	Along riverbanks in evergreen forests
Fabaceae	<i>Aeschynomene indica</i> L.	waterlogged areas
	<i>Canavalia africana</i> Dunn.	Along stream banks in the plains and shola forests
	<i>Smithia blanda</i> Wall. ex Wight & Arn.	Marshy areas in grasslands
	<i>Smithia hirsuta</i> Dalz. in Hook.'s	Marshy areas in grasslands
	<i>Smithia sensitiva</i> Ait.	Marshy grasslands
Gentianaceae	<i>Canscora diffusa</i> (Vahl) R. Br. ex Roem. & Schult.	Along stream banks and grasslands
	<i>Canscora perfoliata</i> Lam.	Wet areas in moist deciduous forests among grasses
Gesneriaceae	<i>Didymocarpus fischeri</i> Gamble	Moist shady areas
	<i>Didymocarpus meeboldii</i> Smith	On wet rocks in grasslands
	<i>Rhynchoglossum notonianum</i> (Wall.) Burt	Moist shady areas in evergreen and semi-evergreen forests
Haloragaceae	<i>Myriophyllum aquaticum</i> (Vell.) Verdc.	Grown as aquarium plant
	<i>Myriophyllum oliganthum</i> (Wight & Arn.) F. v. Muell.	Perennial ponds
Hydrocharitaceae	<i>Blyxa aubertii</i> L.C. Rich. var. <i>echinosperma</i> (Clarke) Cook & Lound	Pools, ponds and paddy fields
	<i>Blyxa octandra</i> (Roxb.) Planch. ex Thw.	Stagnant pools, ponds and in flooded paddy fields
	<i>Hydrilla verticillata</i> (L.f.) Royle.	Stagnant ponds
Hydrophyllaceae	<i>Hydrolea zeylanica</i> (L.) Vahl	Wet sandy areas near water bodies
Juncaceae	<i>Juncus bufonius</i> L.	Marshy areas of grasslands
	<i>Juncus effusus</i> L.	Marshy areas
	<i>Juncus prismatocarpus</i> R. Br. ssp. <i>leschenaultii</i> (Gay ex Laharpe) Kirschner	Marshy areas of grasslands
Lamiaceae	<i>Isodon nigrescens</i> (Benth.) Hara	Marshy areas
	<i>Isodon rivularis</i> (Wight ex Hook.f.) H.Hara	Along riverside in evergreen forests
	<i>Pogostemon auricularius</i> (L.) Hassk.	Waterlogged areas in grasslands
Lemnaceae	<i>Spirodela polyrhiza</i> (L.) Schleid.	Ponds, lakes and waste ditches
Lentibulariaceae	<i>Utricularia aurea</i> Lour.	Stagnant or slow running waters
	<i>Utricularia caerulea</i> L.	Grasslands and marshy areas
	<i>Utricularia graminifolia</i> Vahl	Marshy grasslands
	<i>Utricularia reticulata</i> Smith	Paddy fields, ponds and marshy areas
	<i>Utricularia roseo-purpurea</i> Stapf ex Gamble	Near water courses in evergreen forests
	<i>Utricularia striatula</i> Smith	On wet rocks in grasslands
	<i>Utricularia uliginosa</i> Vahl.	Marshy areas and moist rocks in grasslands
Lobeliaceae	<i>Lobelia alsinoides</i> Lam.	Wet areas in grasslands and also in the plains
	<i>Lipocarpa squarrosa</i> (L.) Goetgh.	Marshy areas in grasslands, wet places
Lythraceae	<i>Ammannia baccifera</i> L. ssp. <i>aegyptiaca</i> (Willd.) Koehne in Engl.	Sandy waterlogged areas and river beds
	<i>Ammannia multiflora</i> Roxb.	Marshy areas in dry deciduous forests

	<i>Rotala illecebroides</i> (Arn. ex Clarke) Koehne in En	Waterlogged areas
	<i>Rotala indica</i> (Willd.) Koehne in Engl.	Waterlogged areas and rock crevices
	<i>Rotala ritchiei</i> (Clarke) Koehne in Engl.	Seasonal ponds in grasslands
	<i>Rotala rosea</i> (Poivet) C.D.K.Cook	Along streams and marshy areas in grasslands
	<i>Rotala rotundifolia</i> (Buch.-Ham. ex Roxb.) Koehne in Engl.	Along streams and marshy areas in grasslands
Melastomataceae	<i>Melastoma malabathricum</i> L.	Stream banks and marshy areas
	<i>Sonerila sahyadrica</i> Giri & M.P. Nayar	Marshy areas in semi-evergreen forests, grasslands
Menyanthaceae	<i>Nymphoides hydrophylla</i> (Lour.) O. Ktze.	Ditches in grasslands and ponds
	<i>Nymphoides indica</i> (L.) O.Ktze.	Ponds and ditches
Myrsinaceae	<i>Ardisia sonchifolia</i> Mez in Engl.	Evergreen forests, often in marshy areas
Najadaceae	<i>Najas indica</i> (Willd.) Cham.	Streams, ditches and ponds
Nelumbonaceae	<i>Nelumbo nucifera</i> Gaertn.	Fresh water ponds and lakes
Nymphaeaceae	<i>Nuphar japonica</i> DC.	Aquatic garden plant
	<i>Nymphaea caerulea</i> Savi.	Grown as aquatic garden plant
	<i>Nymphaea malabarica</i> Poir.	Ponds and paddy fields
	<i>Nymphaea micrantha</i> Guill. & Perr.	Grown as garden plant
	<i>Nymphaea nouchali</i> Burm.f.	Ponds and pools in plains
	<i>Nymphaea omarana</i> Hort. ex Gard.	Grown as garden plant
	<i>Nymphaea pubescens</i> Willd.	Fresh water pools, lakes and flooded paddy fields
	<i>Nymphaea arubra</i> Roxb. ex Salisb.	Ponds
Onagraceae	<i>Ludwigia adscendens</i> (L.) Hara	Ponds and ditches
	<i>Ludwigia hyssopifolia</i> (G. Don) Exell.	Marshy places
	<i>Ludwigia octovalvis</i> (Jacq.) Raven ssp. sessiliflora (Michx.) Raven	Marshy areas in grasslands
	<i>Ludwigia perennis</i> L.	Waterlogged areas in grasslands
	<i>Ludwigia sedioides</i> (Humb. & Bonpl.) H.Hara	Aquatic garden plant
Poaceae	<i>Andropogon polytychus</i> Steud.	Swampy areas in grasslands
	<i>Anthoxanthum borii</i> Jain & Pal	Wet areas in grasslands
	<i>Brachiaria semiundulata</i> (Hochst. ex A. Rich.) Stapf in Prain.	Marshy grasslands
	<i>Coelachne perpusilla</i> (Arn. ex Steud.) Thw.	Swampy areas in grasslands
	<i>Coelachne simpliciuscula</i> (Wight & Arn. ex Steud.) Benth.	Marshy areas in grasslands
	<i>Coix lacryma-jobi</i> L.	Marshy areas
	<i>Dactyloctenium aegyptium</i> (L.) P. Beauv.	Marshy lands and open areas
	<i>Dichanthium oliganthum</i> (Hochst. ex Steud.) Cope, Kew Bull.	Moist areas in grasslands
	<i>Dimeria fuscescens</i> Trin.	Marshy grasslands
	<i>Echinochloa colona</i> (L.) Link.	Marshy
	<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Marshy fields
	<i>Eragrostis nutans</i> (Retz.) Nees ex Steud.	Lake shores and bunds of paddy fields
	<i>Eragrostis pilosa</i> (L.) P. Beauv.	Waterlogged areas
	<i>Eragrostis riparia</i> (Willd.) Nees.	Along backwaters
	<i>Eulalia thwaitesii</i> (Hack.) O.Ktze.	Marshy areas in grasslands
	<i>Garnotia courtallensis</i> (Arn. & Nees) Thw.	Wetlands
	<i>Glyphochloa divergens</i> (Hack.) W.D. Clayton	Wet grasslands
	<i>Hackelochloa granularis</i> (L.) O. Ktze.	Grasslands
	<i>Isachne bourneorum</i> C.E.C. Fisch.	Marshy grasslands

	<i>Isachne fischeri</i> Bor.	Moist areas in grasslands
	<i>Isachne globosa</i> (Thunb.) O. Ktze.	Wetlands
	<i>Isachne miliacea</i> Roth.	Marshy fields, wetlands, along the streams and paddy fields
	<i>Isachne setosa</i> C.E.C. Fisch.	Moist rocky areas in grasslands
	<i>Ischaemum barbatum</i> Retz.	Along banks of lakes and streams
	<i>Ischaemum hirtum</i> Hack. in DC.	Wetlands
	<i>Ischaemum timorense</i> Kunth	Margins of backwaters and grasslands
	<i>Leersia hexandra</i> Sw.	Wetlands
	<i>Leptochloa uniflora</i> Hochst. ex A. Rich.	Bunds of paddy fields
	<i>Oryza rufipogon</i> Griff.	Marshy grasslands
	<i>Oryza sativa</i> L.	Cultivated
	<i>Panicum paludosum</i> Roxb.,	Paddy fields, marshes and still waters
	<i>Panicum repens</i> L.	Wetlands, marshy areas of grasslands and wastelands
	<i>Paspalidium punctatum</i> (Burm. f.) A. Camus in Lecomte,	Wetlands
	<i>Paspalum conjugatum</i> Berg.	Banks of backwaters and rivers
	<i>Paspalum scrobiculatum</i> L.	Marshes, ponds, wet lands and other water-logged areas
	<i>Pennisetum hohenackeri</i> Hochst. ex Steud.	Wetlands
	<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	Mangrove swamps and marshy areas
	<i>Pseudoraphis spinescens</i> (R. Br.) Vickery.	Flooded fields, large pools of brackish water
	<i>Saccharum arundinaceum</i> Retz.	Along streams and field borders
	<i>Saccharum spontaneum</i> L.	Wetlands
	<i>Sacciolepis interrupta</i> (Willd.) Stapf in Prai	Wetlands
	<i>Sacciolepis myosuroides</i> (R. Br.) A. Camus in Lecomte	Ditches and marshes
	<i>Setaria intermedia</i> Roem. & Schult.	Moist deciduous forests
Podostemaceae	<i>Cladopus hookeriana</i> (Tul.) Cusset.	On submerged rocks in streams
	<i>Dalzellia gracilis</i> C.J. Mathew	On rocks in slow flowing rivers
	<i>Dalzellia zeylanica</i> (Gard.) Wight.	On rocks in slow flowing rivers
	<i>Farmeria indica</i> Willis	Along streams
	<i>Indotristicha ramosissima</i> (Wight) van Royen	Streams
	<i>Podostemum munnarensense</i> (Nagendran & Arekal) Mathew & Satheesh	Fast flowing streams
	<i>Polypleurum stylosum</i> (Wight) Hall	On rocks along streams
	<i>Zeylanidium lichenoides</i> (Kurz) Engl. in Engl.	Attached to rocks in rivers
	<i>Zeylanidium maheshwarai</i> Mathew & Satheesh	Attached to rocks in rivers
Polygonaceae	<i>Persicaria barbata</i> (L.) Hara	Marshy areas
	<i>Persicaria barbata</i> (L.) Hara var. <i>gracilis</i> (Danser) H. Hara	Marshy areas
	<i>Persicaria glabra</i> (Willd.) Gomez	Moist areas in forests
	<i>Persicaria hydropiper</i> (L.) Spach.	Moist localities in semi-evergreen forests
	<i>Persicaria minor</i> (Huds.) Opiz	Marshy areas in grasslands of the high ranges
	<i>Persicaria plebeium</i> R. Br.	Along lakeshores when water level recedes
	<i>Persicaria pubescens</i> (Blume) Hara in Hara et al.	Marshy areas
	<i>Persicaria pulchra</i> (Blume) Sojak	Semi-evergreen and moist deciduous forests
Pontederiaceae	<i>Eichhornia crassipes</i> (Mart.) Solms.	Ponds and wet lowlands
	<i>Monochoria vaginalis</i> (Burm. f.) Presl	Paddy fields and wet low lands

Potamogetonaceae	<i>Potamogeton octandrus</i> Poiret	River banks and brackish water in coastal areas
Proteaceae	<i>Helicia nilagirica</i> Bedd.	Along riverbanks in semi-evergreen and evergreen forests
Rubiaceae	<i>Oldenlandia diffusa</i> (Willd.) Roxb.	Moist localities in the plains
Salicaceae	<i>Salix tetrasperma</i> Roxb.	Along riverbanks in semi-evergreen forests
Scrophulariaceae	<i>Artanema longifolium</i> (L.) Vatke	Moist deciduous forests and grasslands
	<i>Bacopa monnieri</i> (L.) Pennell	In the plains and mangrove forests
	<i>Centranthera indica</i> (L.) Gamble.	Moist deciduous forests, grasslands and wet sandy fields
	<i>Dopatrium nudicaule</i> (Willd.) Benth.	Wet areas in moist deciduous and shola forests
	<i>Limnophila aromatica</i> (Lam.) Merr.	Marshy areas
	<i>Limnophila chinensis</i> (Osbeck) Merr.	Water logged areas
	<i>Limnophila connata</i> (Buch.-Ham. ex D. Don) Hand.-Mazz.	Wetlands in the high ranges
	<i>Limnophila heterophylla</i> (Roxb.) Benth.	Waterlogged areas
	<i>Limnophila indica</i> (L.) Druce.	Along banks of streams
	<i>Limnophila repens</i> (Benth.) Benth. in DC.	Waterlogged areas
	<i>Lindernia anagallis</i> (Burm. f.) Pennell	Banks of streams and marshy areas
	<i>Lindernia antipoda</i> (L.) Alston in Trimen	Sides of streams, reservoirs and marshy areas
	<i>Lindernia caespitosa</i> (Blume) Panigrahi	Moist deciduous forests, marshy low lands and cultivated fields
	<i>Lindernia ciliata</i> (Colsm.) Pennell	Moist deciduous forests and wet localities in the plains
	<i>Lindernia hyssopioides</i> (L.) Haines	Marshy areas
	<i>Lindernia oppositifolia</i> (Retz.) Mukerjee	Marshy areas, also in the plains
	<i>Lindernia parviflora</i> (Roxb.) Haines	Marshy areas in grasslands
	<i>Lindernia rotundifolia</i> (L.) Mukerjee	Marshy areas
	<i>Mimulus orbicularis</i> Benth.	Marshy areas in grasslands
	<i>Torenia bicolor</i> Dalz.	Marshy areas
<i>Torenia courtallensis</i> Gamble	Marshy areas in evergreen forests	
<i>Torenia lindernioides</i> Saldanha.	Lake and riversides	
Trapaceae	<i>Typha angustifolia</i> L.	Marshy fields
Urticaceae	<i>Debregeasia longifolia</i> (Burm. f.) Wedd.	Along the stream sides in evergreen forests
	<i>Oreocnide integrifolia</i> (Gaud.) Miq.	Along the stream sides in evergreen forests
	<i>Pouzolzia wightii</i> Bennett var. <i>caudata</i> (Bennett) C.E.C. Fisch.	Near streams in moist deciduous forests
Verbenaceae	<i>Premna herbacea</i> Roxb.	Along sides of watercourses
	<i>Vitex leucoxydon</i> L. f.	Along river banks in evergreen and semi-evergreen forests
Vitaceae	<i>Cayratia trifolia</i> (L.) Domin	Semi-evergreen forests and swamp forests
	<i>Cissus arnottiana</i> Shetty & Singh	Near water courses
Xyridaceae	<i>Xyris pauciflora</i> Willd.	Marshy areas
Zingiberaceae	<i>Hedychium venustum</i> Wight	Banks of streams in evergreen forests

Table 2: Conservation Status (IUCN) of Rare plant Species in the Idukki Dt. Kerala.

Rare	Endangered	Threatened	Vulnerable
<i>Arthraxon lanceolatus</i> (Roxb.) Hochst.	<i>Impatiens acaulis</i> Arn. <i>Impatiens concinna</i> Hook.f.	<i>Isachne setose</i> C.E.C. Fisch.	<i>Impatiens herbicola</i> Hook. f.
<i>Campanula alphonisii</i> Wall.ex A DC	<i>Impatiens denisonii</i> Bedd. <i>Impatiens laticornis</i> C.E.C. Fisch	<i>Theriophonum sivaganganum</i> (Ramam. &Sebastine) Bogner	<i>Impatiens viscosa</i> Bedd
<i>Glyphochloa divergens</i> (Hack.) W.D. Clayton	<i>Impatiens macrocarpa</i> Hook.f.		<i>Rotala ritchiei</i> (Clarke) Koehne in Engl
<i>Impatiens anaimudica</i> C.E.C. Fisch.	<i>Impatiens munnarensis</i> Barnes		
<i>Impatiens dasysperma</i> Wight	<i>Impatiens pandata</i> Barnes <i>Impatiens phoenicea</i> Bedd		
<i>Isachne fischeri</i> Bor	<i>Impatiens rufescens</i> Benth. ex Wight & Arn.		
<i>Ischaemum timorensense</i> Kunth.	<i>Impatiens verecunda</i> Hook. F		

DISCUSSION

Idukki District is blessed with almost all the types of forests. It is one of the hottest hotspots in Western Ghats. The present study reveals that a total 259 species belonging to 51 families is present in this area. Out of them, Poaceae with 43 species forms the dominant family followed by Cyperaceae with 42 species, 22 and 13 species in Scrophulariaceae and Araceae respectively. The other families having more than five species are Balsaminaceae (11 Species), Eriocaulaceae (11), Podostemaceae (9), Polygonaceae (8), Nymphaeaceae (8), Lythraceae (7), Lentibulariaceae (7), Fabaceae (5) and Onagraceae (5). The district being a phytogeographically and climatically unique providing congenial situation for the multiplication and speciation, hold a high percentage of endemism. Some of the endemic species are *Glyphochloa divergens* (Hack.)W.D Clayton from Peerumedu, *Impatiens anaimudica* C.E.C Fisch. from Anaimudi, *I verecunda* Hook.f from Periakanal & Devikulam, *Dichanthium oliganthum* (Hochst.exSteud.) Cope. from Anaimudi, *Polypleuram munnarensense* (Nagendran & Arekal) C.J. Mathew & V.K. Satheesh from Munnar, etc. Even though the study area is richest in biodiversity, some plants species belong to RET categories, which are shown on Table No 2. The present study also reveals that the occurrence of a large number of curious species of limited distribution in this highland district of Kerala. Data provided here may be helpful for the preparation of comprehensive flora of the Idukki district and can also contribute to the floristic documentation of the State.

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