

UGC Major Project

Title - Studies on Flowering Plant Diversity of Ernakulam District, Kerala

Principal Investigator- Dr.C.N. Sunil

Tenure of the Project- 2012-2015

EXECUTIVE SUMMARY

An extensive floristic exploration conducted in the Ernakulam district covering all the habitats like different forest types, wetlands, mangroves, coastal area and low and high altitude grasslands during the period November 2012 to December 2015. Duration of the field trip ranges from a single day to 6 days. As a result of this floristic exploration a total of 1706 species belonging to 158 families and 866 genera were collected and documented. The documentation of 1706 species from the Ernakulam district is comparatively a large figure when compared with the results of similar studies in the neighbouring districts. Poaceae is the largest family comprising 161 species followed by Papilionaceae (94 species), Euphorbiaceae (88 species), Cyperaceae (79 species), Rubiaceae (77 species), Acanthaceae (65 species), Asteraceae (54 species), Orchidaceae (47 species), Scrophulariaceae (41 species) and Convolvulaceae (34 species). Out of these 306 species are endemic to either Western Ghats or Peninsular India and 108 species belongs to any of the threat status proposed by IUCN. The herbaria prepared were deposited in the SNM College Herbarium (SNMH) which is a New York Botanical Garden recognised herbarium. During the tenure of this work, 11 species were reported to the world, one species was rediscovered after a gap of 142 years, one reported as new to India and an another to Western Ghats. Four species were also reported as new to Kerala state. Some recently described species such as *Eriocaulon sivarajanii* Ansari & Balakr., *Eriocaulon cheemenianum* Biju *etal*, *Thottea sivarajanii* Santhosh *etal* etc. from other areas of the state are also collected from the study area. Species like *Lagenandra keralensis* Sivad.& Jaleel, *Aponogeton appendiculatus* van Bruggen, *Justicia sivadasanii* Sunil *etal*, *Anisochilus shoalamudianus* Sunil & Naveen etc. are greatly facing different kinds of threats in the study area. A special importance is given to the wild relatives of economically important species and invasive alien species. Thirty five species of wild relatives of cultivated crops like piper, rice, ginger, nutmeg etc. were collected and documented from the study area. A total of 56 invasive alien species belonging to 27 families and 48 genera are reported from the study area. Ernakulam district is also rich in wetland plant species including mangroves and coastal species. Out of the 16 true mangroves of Kerala, 14 were collected from the study area. During this study 461 medicinal plant species and ethno-botanical uses of wild species are also studied.

Eventhough the district is more rich in floristic diversity when compared to nearby districts, different threats greatly affecting the diversity of the area. Habitat destruction, introduction of exotic species, industrialisation, fast urbanization etc. are some of the threats observed in the study area.

NEW SPECIES DESCRIBED DURING THE STUDY

During the floristic study 11 new species are collected and described viz.,

- *Sonerila sreenarayaniana* Sunil, Naveen Kumar & Rajeev
- *Thottea adichilthottiana* Sunil & Naveen Kumar
- *Arundinella pradeepiana* Sunil & Naveen Kumar
- *Garnotia variyamensis* Sunil, Naveen Kumar & Sanilkumar
- *Anisochilus shoolamudianus* Sunil & Naveen Kumar
- *Eriocaulon manoharanii* Sunil & Naveen Kumar
- *Justicia sivadasanii* Sunil, KMP Kumar & Naveen Kum.
- *Isodon purpurecence* Sunil, Naveen Kumar & Ratheesh
- *Eriocaulon periyarensis* Sunil & Naveen Kumar
- *Kleinia subrahmanianii* Sunil & Naveen Kumar
- *Phyllanthus balakrishnanii* Sunil *etal*

RE-DISCOVERY

- *Phyllanthus macrocalyx* Mull.Arg. re-discovered after a gap of 142 years.

NEW RECORD FOR INDIA

- *Peristylus tentaculatus* (Orchidaceae), is newly recorded for India during the study

NEW RECORD FOR SOUTH INDIA

- *Fimbristylis tenuispica* is newly reported to South India.

NEW RECORD FOR KERALA

- *Hygrophila polysperma*
- *Hemigraphis hirta*
- *Chloris pycnothrix* Trin.

Extended distribution of Species

- Some newly discovered and reported species from other districts of the state are also collected from the present study area which shows their extensive distribution. *Eriocaulon cheemenianum*, *Eriocaulon sivarajanii*, *Thottea sivarajanii*, *Amomum sahyadricum*, *Impatiens sasidharanii*, *Tripogon narayanii* etc. are some of them.

PAPER PUBLICATIONS FROM THE PROJECT

1. V.V. Naveen Kumar, Ratheesh Narayanan, C.N. Sunil, M.G. Sanilkumar & E.C. Baiju. *Isodon purpurescence* (Lamiaceae), a new species from Western Ghats, Kerala, India. **Taiwania** 61 (1): 13-15, 2016.
2. V.V. Naveen Kumar, K.M.Prabhukumar, N. Bhavadas, C.N. Sunil & Indira Balachandran. Rediscovery of *Phyllanthus macrocalyx* Mull.Arg. (Phyllanthaceae), a rare endemic species of the Western Ghats, India. **Current Science** 110 (1). 2016.
3. C.N. Sunil, K.M. Prabhukumar, V.V. Naveen Kumar, V.S.Hareesh & E.C. Baiju. *Justicia sivadasanii* (Acanthaceae): a striking new species. from the Western Ghats, India. **Kew Bulletin** 70:55. 2015.
4. C.N. Sunil, V.V. Naveen Kumar, K.H. Amitha Bachan & M.G. Sanilkumar. *Anisochilus shoolamudianus* (Lamiaceae): A new species from Western Ghats, India. **Webbia: Journal of Plant Taxonomy and Geography**. 70(2), 217-220. 2015
5. C.N Sunil & V.V. Naveen Kumar. A new species of *Eriocaulon* from Western Ghats, India. **Webbia: Journal of Plant Taxonomy and Geography**. 70(2), 211-215. 2015.
6. C.N. Sunil, V. Abdul Jaleel & V.V. Naveen Kumar. New records of Grasses for Kerala. **Indian forester**. 141(12): 1320-1321. 2015.
7. C.N. Sunil & V.V. Naveen Kumar *Hygrophila polysperma* (Acanthaceae), a new record for Kerala. **Journal of Economic and Taxonomic Botany**. 38 (2): 2014.
8. C.N. Sunil, V.V. Naveen Kumar & M.G. Sanilkumar. A new species of *Garnotia* (Poaceae) from Kerala, India. **Journal of Botanical Research Institue of Texas**, 8 (2): 517-521. 2014
9. C.N. Sunil & V.V., Naveen Kumar. A New Species of *Arundinella* (Poaceae: Panicoideae: Arundinelleae) from Kerala, India. **Webbia: Journal of Plant taxonomy and geography**. 69 (2): 249-252. 2014.
10. C.N. Sunil & V.V. Naveen Kumar. *Thottea adichilthottiana* (Aristolochiaceae), a new species from Ernakulam, Western Ghats, India. **Webbia : Journal of Plant taxonomy and geography**. 69(2): 239-242. 2014.
11. C.N. Sunil, V.V. Naveen Kumar & T.S. Rajeev. *Sonerila sreenarayaniana* (Melastomataceae), a new species from Ernakulam district of Kerala, India. **International Journal of Advanced Research** 2(3): 701-704, 2014.
12. V.V. Naveen Kumar & C.N. Sunil. Diversity of Mangroves and its associates in Ernakulam district, Kerala. **Proceedings of the National seminar on Role of Plant systematic in Biodiversity and its conservation**. 2014

