Plant Archives Vol. 25, No. 1, 2025 pp. 2041-2046 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org

DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2025.v25.no.1.296

AN ENUMERATION OF ANGIOSPERMS IN AND AROUND THE TAMPARA LAKE OF GANJAM DISTRICT, ODISHA, INDIA

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(Date of Receiving-15-11-2024; Date of Acceptance-06-02-2025)

ABSTRACT

Tampara Lake is one among the recently declared Ramsar sites of the Odisha state lying near to Chatrapur of Ganjam district. It is the second largest fresh water lake in Odisha next to the Ansupa Lake. Being rich in floristic diversity and one of the important water bodies, documentation of the floristic wealth is neglected till date. Taking these into account a recent floristic study was conducted in Tampara Lake and its immediate neighbourhood. The results are communicated in the present paper dealing with the documentation of 206 species of angiosperms belonging to 172 genera under 64 families.

Key words : Enumeration, Angiosperms, Tampara Lake, Ganjam.

Introduction

Tampara Lake lies in between 19°21′ 84°59′ E/ 19.35°N 84.98°E and situated on the right bank of the Rushikulya river, near Chhatrapur, Ganjam finds its place among the Ramsar sites of the country from the state of Odisha being the fresh water lake and second largest next to Ansupa Lake (12 October 2021 and site No. 2489). This lake spreads over an area of 300 ha. with a length of 5.8 km and 670 m wide. The water depth is around 20-25 ft. in monsoon and 10-12 ft. in summer. This lake is no way connected with any nearby water body. Earlier around some 150 years back, it was a depressed land where the sea water along with rain water was reserved throughout the year and feeded by the water from Bay of Bengal through connections/mouth. Subsequently the lake lost connections due to sand accumulation forming a big and long stretch barrier of sands. The lake is 3 ft. below the level of nearby river the Rusikulya. This lake plays a pivotal role in boosting the economy of the local inhabitants to support their livelihood in terms of fish production, agriculture and eco-tourism etc. The lake is an abode of many life forms which includes 60 species of birds, 46 species of fishes. A survey was carried out by Dash *et al*. (2021) to enlist the phytoplankton diversity of the lake and successfully recorded 52 algal species

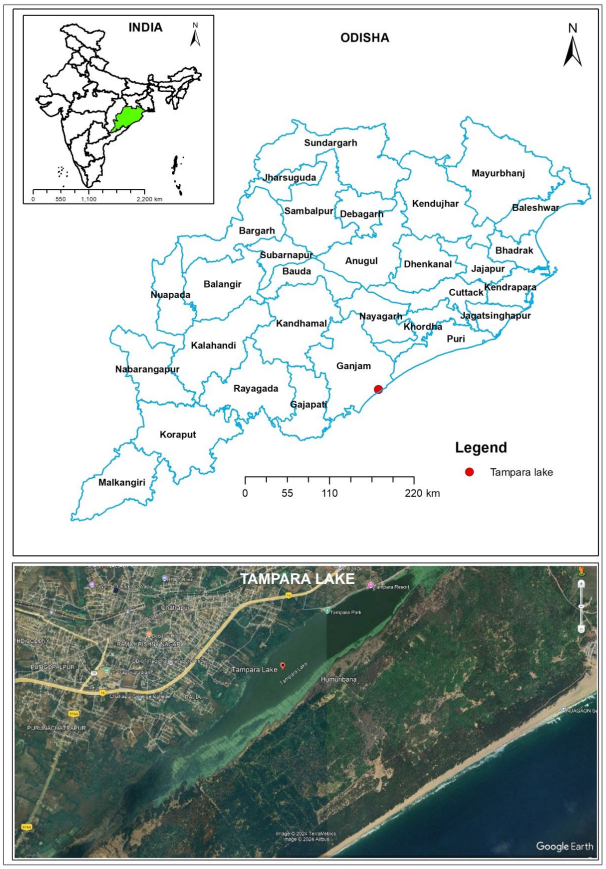

Fig. 1 : Map of the study area.

from the Tampara Lake. B ut the lake floristically remained untouched although the flora is rich and significant. Taking the un-exploredness into account, floristic surveys were undertaken to document the angispermic taxa before any genetic erosion will take place.

Materials and Methods

The current work is the outcome of exhaustive surveys undertaken in and around the Tampara Lake, Ganjam, Odisha. It remained as a wide gap in the knowledge area since long back. During the present study due attentions were also paid to record the distribution pattern and phenology of the plants. The detailed information regarding associate plants, ecology, other field characters were documented along with recording of utilitarian value of plants. Each family was represented along with the plants arranged alphabetically in the present treatment. Identification of plants were done in consultation with the important regional and national floras, revisionary works, monographs, recent publications and preserved specimens in the herbaria.

Results and Discussion

The study resulted in the enumeration of 206 species under 172 genera belong to 64 families of Angiosperms, with a single species of fern (Pteridophyte) i.e *Marsilea minuta* L. Concurrently two species of *Agaricus* (Fungi/ Mushroom) were also observed but not enumerated in the present comminication. On the analysis, it is found that herbs are dominant being represented by 137 species followed by trees 27 species, climbers 25 species and shrubs 17 species. Poaceae is the dominant family with 26 species, followed by Fabaceae 17 species, Cyperaceae 15 species, Convulvulaceae and Euphorbiaceae 12 species each, Amaranthaceae and Asteraceae 8 species

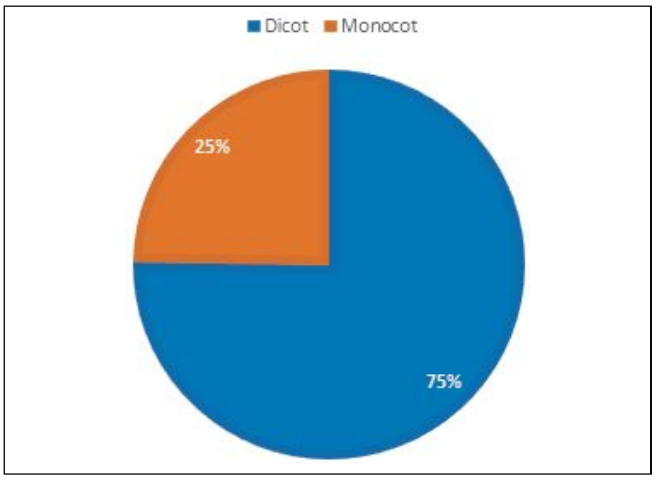

Fig. 2 : Pie chart showing percentage of monocot and dicot species.

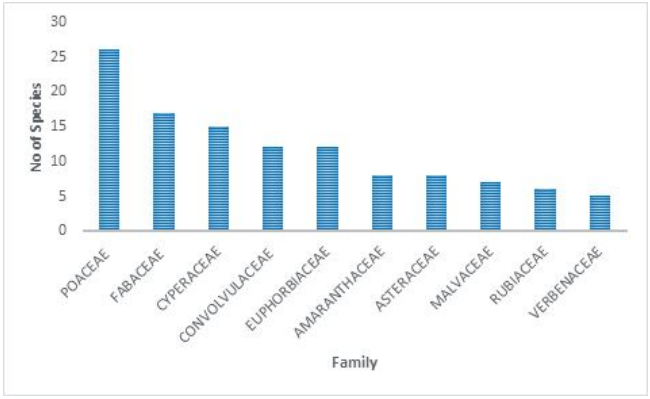

Fig. 3 : Bar diagram showing ten dominant families at Tampara lake.

each, Malvaceae 7 species, Rubiaceae 6 species and Verbenaceae 5 species. Interestingly, more than half of the angiospermic families (35) are monotypic being represented by single genera and species.

Enumeration (Angiosperms)

Acanthaceae

Andrographis echioides (L.) Nees

Asystasia gangetica (L.) T. Anderson subsp. *gangetica*

Justicia simplex D. Don.

Ruellia prostrata Poir.

Amaranthaceae

Aerva lanata (L.) Juss.

Alternanthera philoxeroides (Mart.) Griseb

Alternanthera sessilis (L.) R. Br. ex DC.

Amaranthus viridis L.

Celosia argentea L.

Digera muricata (L.)Mart.

Gomphrena celosioides Mart.

Pupalia lappacea (L.) Juss. var. *lappacea*

Anacardiaceae

Anacardium occidentale L.

Lannea coromandelica (Houtt.) Merr.

Annonaceae

Polyalthia suberosa (Roxb.) Thwaites

Apiaceae

Centella asiatica (L.) Urb.

Apocynceae

Ichnocarpus frutescens (L.) W.T. Aiton

Arecaceae (Palmae)

Borassus flabellifer L.

Cocos nucifera L.

Phoenix sylvestris (L.) Roxb.

Aristolochiaceae

Aristolochia indica L.

Asclepiadaceae

Calotropis gigantea (L.) W.T. Aiton

Oxystelma esculentum (L.f.) Sm.

Vincetoxicum indicum (Burm.f.) Mabb. var. *indicum*

Asteraceae

Chromolaena odorata (L.) R.M. King & H. Rob. f. *odorata*

Eclipta prostrata (L.) L.

Mikania micrantha Kunth

Parthenium hysterophorus L.

Tridax procumbens L.

Vernonia cinerea (L.) Less var. *cinereum*

Wedelia chinensis (L.) Merr.

Xanthium strumarium L.

Balsaminaceae

Impatiens balsamina L.

Boraginaceae

Cordia dichotoma G. Forst.

Capparaceae

Cleome rutidosperma DC.

Cleome viscosa L.

Crateva adansonii DC. subsp. *adansonii*

Casuarinaceae

Casuarina equisetifolia L.

Clusiaceae

Calophyllum inophyllum L.

Colchicaceae

Gloriosa superba L.

Combretaceae

Terminalia catappa L.

Commelinaceae

Commelina benghalensis L.

Cyanotis axillaris (L.) Sweet

Murdannia nudiflora (L.) Brenan

Convolvulaceae

Evolvulus alsinoides (L.) L. var. *alsinoides*

Evolvulus nummularrius (L.) L.

Hewittia malabarica (L.) Suresh

Ipomoea aquatica Forssk.

Ipomoea carnea Jacq. subsp. *fistulosa* (Mart. ex Choisy)

Ipomoea marginata (Desr.) H. Manitz f. *marginata*

Ipomoea pes-caprae (L.) R. Br. subsp. *pes-caprae*

Ipomoea pes-tigridis L.

Ipomoea rubens Choisy

Merremia emarginata (Burm.f.) Hall.f.

Xenostegia tridentata (L.) D.F.Austin & Stapels subsp. *tridentata*

Xenostegia tridentata (L.) D.F.Austin & Stapels subsp. *hastata* (Desr.) Parmar

Crassulaceae

Kalanchoe pinnata (Lam.) Pers.

Cucurbitaceae

Coccinia grandis (L.) Voigt

Cucumis maderaspatanus L.

Cyperaceae

Bulbostylis barbata (Rottb.) C.B. Clarke var. *barbata*

Cyperus articulatus L.

Cyperus compressus L.

Cyperus difformis L.

Cyperus iria L.

Cyperus rotundus L.

Eleocharis atropurpurea (Retz.) J. Presl & C. Presl

Eleocharis dulcis (Burm.f.) Trin. ex Hensch.

Fimbristylis aestivalis (Retz.) Vahl var. *aestivalis*

Fimbristylis littoralis Gaudich.

Kyllinga brevifolia Rottb. var. *brevifolia* Descr.

Pycreus pumilus (L.) Nees var. *pumilus*

Rhynchospora wightiana (Nees) Steud.

Schoenoplectus articulatus (L.) Palla

Schoenoplectus litoralis (Schrad.) Palla subsp. *litoralis*

Euphorbiaceae

Acalypha indica L.

Croton bonplandianus Baill.

Euphorbia hirta L.

Euphorbia serpens Kunth

Jatropha gossypifolia L. var. *gossypifolia*

Microstachys chamaelea (L.) Müll. Arg.

Phyllanthus amarus Schumach. & Thonn.

Phyllanthus maderaspatensis L.

Phyllanthus reticulatus sensu lato Poir.

Phyllanthus simplex Retz.

Phyllanthus urinaria L.

Tragia involucrata L.

Fabaceae

Acacia auriculiformis A. Cunn. ex Benth.

Albizia lebbeck (L.) Benth.

Mimosa pudica L. var. *pudica*

Neptunia oleracea Lour.

Senna occidentalis (L.) Link

Senna tora (L.) Roxb.

Abrus precatorius L.

Alysicarpus tetragonolobus Edgew. var. *tetragonolobus*

Cajanus scarabaeoides (L.) Thouars

Canavalia gladiata (Jacq.) DC.

Galactia tenuiflora (Klein ex Willd.) Wight & Arn. var. *tenuiflora*

Grona triflora (L.) H. Ohashi & K. Ohashi

Mucuna pruriens (L.) DC. var. *pruriens*

Rothia indica (L.) Druce

Tephrosia purpurea (L.) Pers. var. *purpurea*

Teramnus labialis (L.f.) Spreng.

Vigna trilobata (L.) Verdc. var. *trilobata*

Hydrocharitaceae

Hydrilla verticillata (L.f.) Royle

Lamiaceae

Anisomeles indica (L.) Kuntze

Leucas cephalotes (J. Koen. ex Roth) Spreng.

Mesosphaerum suaveolens (L.) Kuntze

Ocimum americanum L.

Lauraceae

Litsea glutinosa (Lour.) C.B. Rob. var. *glutinosa*

Lentibulariaceae

Utricularia aurea Lour.

Malvaceae

Abutilon indicum (L.) Sweet subsp. *indicum*

Malachra capitata (L.) L.

Pavonia odorata Willd.

Sida acuta Burm, f.

Sida cordata (Burm.f.) Borss. Waalk.

Sida cordifolia L.

Urena lobata L. subsp. *lobata*

Meliaceae

Azadirachta indica A. Juss.

Cipadessa baccifera (Roth) Miq.

Menispermaceae

Cissampelos pareira L. var. *hirsuta* (Buch.-Ham. ex DC.) Forman

Tiliacora acuminata (Lam.) Miers

Tinospora cordifolia (Willd.) Miers ex Hook.f. & Thomson

Menyanthaceae

Nymphoides indica (L.) Kuntze

Molluginaceae

Mollugo pentaphylla L. var. *pentaphylla*

Moraceae Link.

Ficus benghalensis L.

Ficus hispida L.f.

Ficus racemosa L.

Streblus asper Lour.

Myrtaceae

Syzygium cumini (L.) Skeels

Najadaceae

Najas marina L. var. *marina*

Nyctaginaceae

Boerhavia diffusa L.

Nymphaeaceae

Nymphaea pubescens Willd.

Onagraceae

Ludwigia perennis L.

Oxalidaceae

Oxalis corniculata L.

Pandanaceae

Pandanus odorifer (Forssk.) Kuntze

Papaveraceae

Argemone mexicana L.

Passifloraceae

Passiflora foetida L. var. *foetida*

Pedaliaceae

Pedalium murex L.

Plumbaginaceae

Plumbago zeylanica L.

Poaceae (Gramineae)

Bothriochloa bladhii (Retz.) S.T. Blake

Brachiaria distachya (L.) Stapf

Chloris barbata Sw.

Chrysopogon aciculatus (Retz.) Trin.

Cynodon dactylon (L.) Pers.

Cynodon radiatus Roth ex Roem. & Schult.

Cyrtococcum oxyphyllum (Steud.) Stapf

Dactyloctenium aegyptium (L.) Willd.

Echinochloa colonum (L.) Link

Eleusine indica (L.) Gaertn.

Eragrostis amabilis (L.) Wight & Arn. var. *amabilis*

Eragrostis atrovirens (Desf.) Trin. ex Steud.

Eriochloa procera (Retz.) C.E. Hubb.

Imperata cylindrica (L.) Raeusch. var. *cylindrica*

Leersia hexandra Sw.

Oplismenus compositus (L.) P. Beauv.

Oryza sativa L.

Panicum repens L.

Paspalum distichum L.

Paspalum scrobiculatum L. var. *scrobiculatum*

Perotis indica (L.) O.Kuntze var. *indica*

Saccharum spontaneum L.

Setaria geminata (Forssk.) Veldkamp

Trachys muricata (L.) Pers.

Vetiveria zizanioides (L.) Nash

Zoysia matrella (L.) Merr. var. *matrella*

Polygalaceae

Polygala arvensis Willd.

Polygonaceae

Antigonon leptopus Hook. & Arn.

Persicaria barbata (L.) Hara var. *barbata*

Portulacaceae

Portulaca oleracea L.

Portulaca quadrifida L.

Potamogetonaceae

Potamogeton nodosus Poir.

Rhamnaceae

Ziziphus mauritiana Lam. var. *mauritiana*

Ziziphus oenopolia (L.) Mill. var. *oenopolia*

Rubiaceae

Dentella repens (L.) J.R. Forst. & G.Forst. var. *repens*

Mitracarpus hirtus (L.) DC.

Morinda coreia Buch. -Ham. var. *coreia*

Oldenlandia diffusa (Willd.) Roxb.

Oldenlandia trinervia Retz.

Spermacoce hispida L.

Rutaceae

Glycosmis pentaphylla (Retz.) DC.

Santalaceae

Santalum album L.

Sapindaceae

Allophylus serratus (Roxb.) Kurz

Sapindus emarginatus Vahl

Scrophulariaceae

Bacopa monnieri (L.) Wettst.

Bonnaya antipoda (L.) Druce

Scoparia dulcis L.

Torenia crustacea (L.) Cham. & Schltdl.

Solanaceae

Datura metel L.

Physalis minima L.

Solanum americanum Mill. var. *americanum*

Solanum sisymbrifolium Lam.

Sterculiaceae

Melochia corchorifolia L.

Tiliaceae

Corchorus aestuans L.

Corchorus trilocularis L.

Triumfetta rhomboidea Jacq.

Typhaceae

Typha domingensis Pers.

Verbemaceae

Clerodendrum cordatum D. Don

Lantana camara L. var. *camara*

Fig. : a. *Ipomoea cornea* Jacq., **b.** *Passiflora foetida* L. var. *foetida*, **c.** *Pandanus odorifer* (Forssk.) Kuntze, **d.** *Centella asiatica* (L.) Urb., **e.** *Bocopa monnieri* (L.) Wettst., **f.** *Acalypha indica* L., **g.** *Pedalium murex* L., **h.** *Gloriosa superba* L.

Lippia javanica (Burm.f.) Spreng.

Phyla nodiflora (L.) Greene

Tectona grandis L.f.

Violaceae

Hybanthus enneaspermus (L.) F. Muell.

Vitaceae

Ampelocissus latifolia (Roxb.) Planch.

Cayratia pedata (Lam.) Gagnep. var. *pedata*

Cayratia trifolia (L.) Domin

Zygophyllaceae

Tribulus terrestris L.

Conclusion

Now, the Tampara Lake is serving as a tourist destination as a result many visitors are coming for boating and enjoying the serenic as well as scenic beauty. In coarse of high magnitude of tourism activities, the climate is experiencing threat of different categories leading in environmental pollutions. Prevention of the environment with equal focus on the biodiversity is the need of the hour. Sustainable as well as judicious tourism and fishing activities should be done without impacting the environment in general and flora in particular along with creating mass awareness.

Acknowledgements

The author is thankful to the Director, Botanical Survey of India, Kolkata for necessary help and support. Thanks are also due to the Scientist-E & H.o.O, Botanical Survey of India, Deccan Regional Centre, Hyderabad for facilities.

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