

RIPARIAN VEGETATION AND ECONOMIC UTILITY: A SURVEY FROM BHARATHAPUZHA RIVER, KUMBIDI, PALAKKAD, KERALA

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Abstract: The present study was conducted in Bharathapuzha River near Kumbidi has documented the vegetation, habit, habitat, and species diversity along with the river. The floristic exploration started from September 2021–to February 2022. The Bharathapuzha River is the second-longest west-flowing river that drains into the Arabian Sea in Kerala this originated from the Annamalai hills. Kumbidi is a village in Pattambi taluk of Palakkad district in the Indian state of Kerala. This documentation has collected 25 species under 12 families for herbarium and their characters were also recorded.

Key word: Bharathapuzha River, Riparian vegetation, Kumbidi, Palakkad

INTRODUCTION:

The river has become the main target of development as a serious source of water. River health is the material basis and assurance of human survival and economic development. Vegetation is the key element of rivers. Riparian vegetation can be found on sediment deposits, on banks, and along river margins, while aquatic vegetation grows in or near water. The word “RIPARIAN” originated from the Latin word “RIPA” which means the bank of a river, pond, or lake of the surrounding landscape (Tabacchi et al., 1990; Junk & Piedade 1997). Rivers and riparian zones are complex geomorphic systems that play an essential role in environmental function (Gregory al.,1991).

A riparian ecosystem is an interface between terrestrial and aquatic ecosystems that expand down into the groundwater, up above the canopy, away from the floodplain, up the near-slopes that drain to the water, and along the river basin at an uneven width (Wagner & Hagen, 2000). The Bharathapuzha river is the second longest west flowing river that drains into the

Arabian sea in Kerala This originated from the Annamalai hills. It is considered because the Nile of Kerala so that it's also known as Nila. The survey of plants during a particular area helps in understanding the general ecological conditions which may be also deciphered by classifying the recorded plants into various biological life forms. It makes us discover diverse ethnic use of the plant. Flora and vegetation surveys are wont to gather information about the plants and collection of plants (vegetation), that is, the floristic values, of a selected area. In earlier work on floral diversity in the Indian subcontinent J.D Hooker (1872-1897) included aquatic flora in the general list.

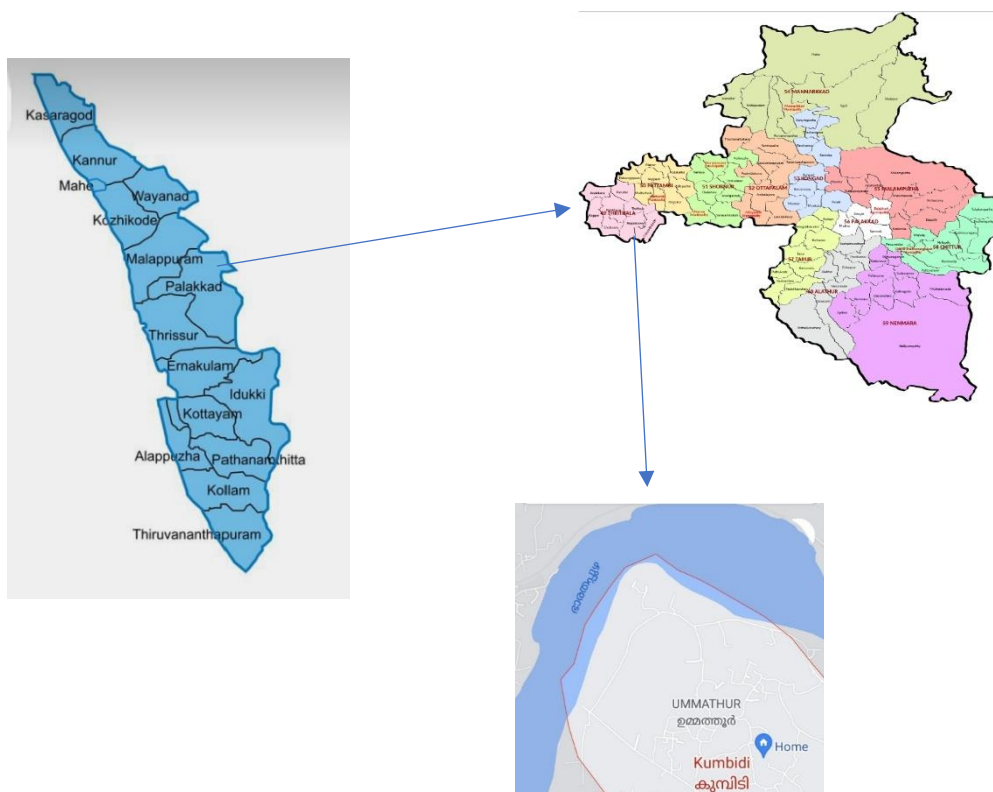
An effect of river valley activities on this indigenous riparian vegetation was investigated, and it was discovered that changes in the ecosystem would result in the extinction of all riparian habitats and vegetation (Bachan 2005). When Nature is fully intact, it regulates the quality of water and provides food and shelter to its inhabitants. If nature is upset; it can disappear altogether or grows and spread at an alarming rate and can cause anything from a local nuisance to a catastrophe that may directly Threaten human life. Often, aquatic plants are difficult to identify due to their lack of floral characters and convergent morphology (Cook, 1990). Panda & Misra (2011) provided information about ethnomedicinal uses of 48 wetland plant species of South Orissa and discussed their conservation.

The flora component refers to individual species while the vegetation component refers to the composition of the gathering of flora species. The present study investigated the plant species along river shores and 25 species are recorded and documented, the herbarium is also prepared for the same. Vegetation seen along the river edges are generally referred as the riparian vegetation and occupies one of the most dynamic areas of the landscape. It is also known as gallery Forests and streamside forests (Brinson, 1990).

MATERIALS AND METHODS

STUDY AREA

The recent study was conducted in Bharathappuzha, near Kumbidi Palakkad district Kumbidi is a village in Pattambi taluk of Palakkad district in the state of Kerala. It is the administrative headquarters and commercial center of Anakkara Panchayath. Kumbidi is located opposite Kuttippuram town and adjacent to Thavanur and Tirunavaya towns. Kumbidi town area extends from the town center to the surrounding areas such as Ummathur, Thottazhiyam, Perumbalam,



Panniyur, Puramathilssery, Maniyam Perumbalam, and Melazhiyam. It situated on the southern bank of the Bharathappuzha river (Nila, Ponnani River, or Kuttippuram River).

Systematic explorations were conducted along the riparian zone of Bharathapuzha and its tributaries from September 2021–to February 2022. For the collection of original information on the floristic diversity of Bharathapuzha and its tributaries, the photo documentation has been carried out with plant habits, habitat, and various parts using Oppo A15 camera. On each field

trip, 3 samples of each species with flowers, fruits, inflorescence, and vegetative parts were collected. For plants that are not flowering at the time of the field trip, only the vegetative parts were collected. In the case of small herbaceous plants, specimens with roots or other parts were obtained. Data were recorded in the field book from the location of the collection.

Survey and identification

The taxonomic characterization has been carried out using microscope. Identification of the specimens was made initially with the help of standard floras (Gamble and Fischer, 1918 – 1921; Hooker, 1872-1897) and regional floras (Vajravelu, 1990; Manilal and cc Available monographs and revisions were also consulted. Identifications were confirmed after further studies with reference to authentic type materials available either in digital format or as herbarium at K (Kew herbarium), MH (Madras Herbarium), CALI (Calicut University herbarium) and CMPR (Centre for Medicinal Plant Research, Kottakkal). The population of threatened category species was assessed.

Collection and preparation of herbarium specimens were done as per the standard procedures (Santapau, 1955; Bridson and Forman, 1991). The processed specimens were mounted on herbarium sheets of standard size. After mounting the specimens, a label is put on the lorigt-handhand corner of the sheets, to provide information gathered from field book. Voucher specimens were deposited in the., Herbarium.

RESULT AND DISCUSSION

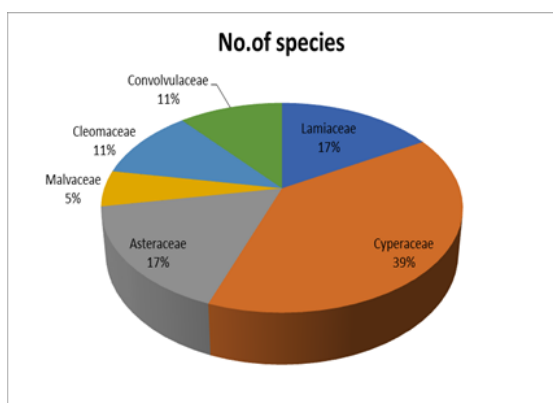
During this survey total of 25 species belonging to 12 families were collected and documented. Out of 25 species, 12% of species are medicinally used, 3% of species are used as Food and 2%of species are used as Fodder. Documentation of their economic value is important for the conservation of the Riparian ecosystem. Human activities are highly adulterated in the Bharathappuzha river basin, so the plant vegetation is decreased due to this and drought is also a major issue. The list of flora from the Bharathappuzha river basin near Kumbidi, from September2021February 2022 is presented in Table 1

Table-1

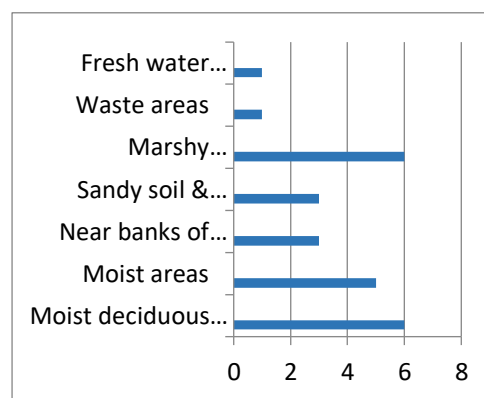
SI No	Scientific name	Vernacular name	Family
1	<i>Anisomeles indica (L.)</i>	chedayan, karithumba	Lamiaceae
2	<i>Bulbostylis barbata(Rottb)C.B</i>	Water grass	Cyperaceae
3	<i>Cleome monophylla(L)</i>	Spindle pod, Kattukadugu	Cleomaceae
4	<i>Cleome viscosa (L)</i>		Cleomaceae
5	<i>Cyperus castaneus</i>	Not known	Cyperaceae
6	<i>Cyperus rotundus L</i>	Muthanga, nut grass	Cyperaceae
7	<i>Fimbristylis aestivalis Vahl, Enum.</i>	Summer fimbry	Cyperaceae
8	<i>Fimbristylis argentea (Rottb) Vahl, Enum.</i>	Fimbry, mullen pullu	Cyperaceae
9	<i>Fimbristylis bisumbellata (Forssk.) Bubani</i>	Double-Umbel Fimbry, Neer-pongelion	Cyperaceae
10	<i>Grangea maderaspatana (L.)</i>	Nelampala	Asteraceae
11	<i>Hewittia malabarica (L.)</i>	Ohanamvalli	Convolvulaceae
12	<i>Hygrophila schulli (Buch. - Ham.) M. R. & S. M. Almeida, Journ</i>	Vayalchulli, Marsh barbel	Acanthaceae
13	<i>Ipomoea aquatica frossk.Enum</i>	Water spinach	Convolvulaceae
14	<i>Justicia gendarussa Berm</i>	Karunochi, Vathamkolli	Acanthaceae
15	<i>Kyllinga brevifolia (Rottb.)</i>	Nutsedge	Cyperaceae
16	<i>Mikania micrantha H.B. K</i>	Vaya, Dritharashtra pacha	Asteraceae

17	<i>Monochoria vaginalis (Burm. f.)</i>	Karimkoyalum, Kolachempu	Pontederidaceae
18	<i>Nymphoides hydrophylla (Lour.)Kuntze,</i>	Neythel, Crested floating-heart	Menyanthaceae
19	<i>Orthosiphon thymiflorus (Roth) Sleesen</i>	Chilannippadam,Kattuthritha	Lamiaceae
20	<i>Pennisetum pedicellatum Trin.</i>	Poochavalpullu,oolappullu	Poaceae
21	<i>Pistia stratiotes (L.)</i>	Water lettuce,neerchera	Araceae
22	<i>Salvinia molesta D. S. Mitch.</i>	Giant salvinia, kariba-weed	Salviniaceae
23	<i>Sida rhombifolia L.</i>	Kurumthotti	Malvaceae
24	<i>Spagneticola tribulata (L.) A.S.Hitche</i>	Singapore daisy, wedelia	Asteraceae
25	<i>Vitex trifolia.L</i>	Nochi, Vellanochi	Lamiaceae

Distribution of plants based on family.



Distribution of plants based on habitat



Distribution Of Plants Based On Habit.

Distribution Of Plants Based On Distribution

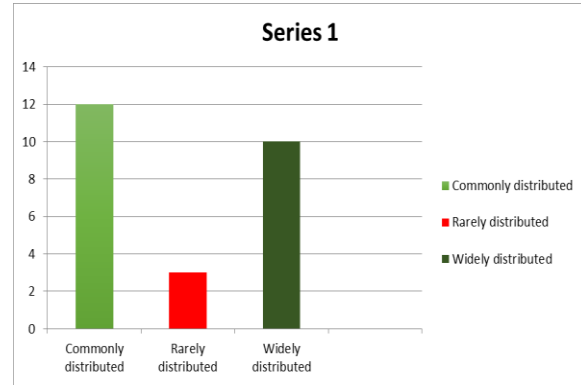
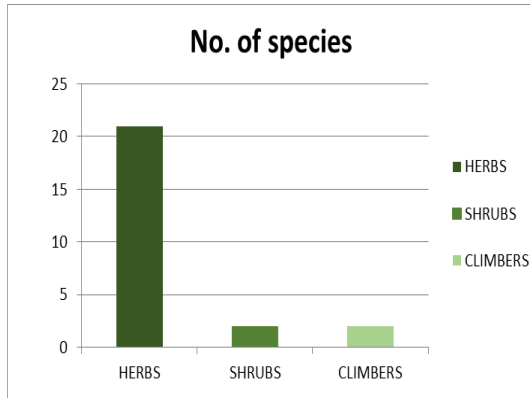


Table -2



A



B



C



D



E



F



G



H

Table -2 ; Plants collected from Bharathappuzha river, A-*Ipomoea aquatica* frossk.Enum,B-*Mikania micrantha* H.B. K, C-*Salvinia molesta* D. S. Mitch. ,D-*Monochoria vaginalis* (Burm. f.) ,E-*Hewittia malabarica* (L.), F-*Nymphoides hydrophylla* (Lour.)Kuntze, G-*Fimbristylis argentea* (Rottb) Vahl, Enum., H-*Cleome viscosa* (L).

CONCLUSION

Aquatic and Wetland ecosystems are crucial natural resources. Despite this fact they are looked down upon as wastelands and are being reclaimed for various developmental needs, bringing several taxa, which would be of great potential value in medicine and other industrial uses, to the verge of extinction. The role of biodiversity in supporting the wetland system and its resilience is not well known; however, the values offered by many wetland systems to human society are extremely important (Sabu and Babu, 2007). A thorough systematic study is necessary to completely cover the floristic diversity of aquatic and wetland ecosystems rapidly vanishing. Taxonomic inventorying of the Bharathappuzha river stretch along Kumbidi, Palakkad revealed the presence of 25 taxa belonging to 12 families, most of which were herbs. The family Cyperaceae having 7 plant species with 3 genera and other families including Asteraceae, Lamiaceae, Cleomaceae, Convolvulaceae, Poaceae, Araceae, Salviniaceae, Acanthaceae, Menyanthaceae and Pontederidaceae.

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