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Diversity and Distribution of Macrophytes and Associates Herbaceous Non-Macrophytes from Ponds Present Among Coastal Area of Palghar District, Maharashtra India

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Abstract

A recent study analyses the survey of diversity of hydrophytes and associates non macrophytic plants among 10 ponds from the coast of Palghar district. All together 18 Macrophytes and 39 non associates macrophytes along the bank of ponds belonging to 33 families are recorded. Enlisted macrophytes 1 species is Algae, 1 species is Pteridophyte and 16 are Angiospermic plants species recorded and all non macrophytes belonging to only angiospermic group.

Key words: Aquatic macrophytes, Associates macrophytes, Coast, Lakes, Palghar.

1. Introduction

Aquatic plants enhance the beauty of ponds and provide habitat for other forms of aquatic life. Floating leafy plants, such as *Nelumbonucifera* common in quiet, calm area of ponds. Submerged plants create diverse and complex underwater habitat in lakes and emergent plants are found in transition area between land and water. Aquatic hydrophytes influence the quality of water by using nutrients and accumulation of heavy metals (Devlin, 1967). Hydrophytes are an important factor to maintain ecological balance. If hydrophytes are present in huge quantity they change the distribution, abundance and composition of aquatic organism and therefore they maintain aquatic diversity (Agostinhort *et al.* 2007, Theelet *al* 2008). Study on wetland vascular plants and aquatic plants in India were done by Agharkar (1923), Biswas and Calder (1936), Bhadri *et al* (1962), Deb (1976) and Cook (1976).

It is more fruitful to conserve the biodiversity of aquatic plant species so the documentation of aquatic hydrophytes around 10 ponds from coast of Palghar district. This research work is done first time to study of hydrophytes from the ponds in coast of Palghar district.

2. Materials and Methods:

Random survey was carried out during the April 2018 to December 2018 to collect various macrophytes and associates non macrophytes found in different ponds located near coast of Palghar district. Coast of Palghar district covers an area of 1500 sq.km. The geographical distribution of Palghar district is, it lies between latitude 19.41⁰ North and longitude 72.45⁰ East.

Collected plants initially identified with the help of Cooke's flora (Cooke 1901-1908), Flora of Maharashtra State and flora of Kolhapur District and also illustrated Aquatic and Wetland plants in Harmony with mankind. Collected plant specimen mounted on a herbarium sheets by traditional method (Santapau, Jain and Rao). Collected plant species distributed in plant group like algae, pteridophytes and angiosperms are arranged with their botanical name, respective family, local name, habit and phenology.

3. Result:

Table -1 indicates total 18 species and 16 genera of hydrophytes belonging to 12 families and Table-2 indicates 39 Species and 30 genera of nonhydrophytic macrophytes belonging to 21 families. Altogether 57 plant species 46 genera are collected belonging to 33 families. Recorded plants are arranged with their groups, botanical name & author, family, local name (Marathi), habit and phenology. Plate -1 indicate ponds in coast of Palghar district, Plate-2 indicate some hydrophytes surrounding ponds of coastal area of Palghar district.

Table 1: List of aquatic Hydrophytes

Sr. No.	Group	Botanical Name	Family	Common Name	Habit	Phenology
1.	Algae	<i>Charazeylanica</i> , Willd.	Characeae	-	-	Sep-Dec
2.	Pteridophytes	<i>Salvinia. Molest</i> , D.S.Mitch	Salviniaceae	-	-	July-Oct
3.	Angiosperm	<i>Pistiastratiotes</i> , Linn.	Araceae	-	Herb	May-Dec
4.	Angiosperm	<i>Utriculariagraminifolia</i> , Grah	Lentibulariaceae	-	Herb	June-Sep
5.	Angiosperm	<i>Hydrillaverticillata</i> , (L.f.) Royle, Illuster.	Hydrocharitaceae	<i>Sheval</i>	Herb	Jan-Apr
6.	Angiosperm	<i>Vallisneriaspiralis</i> , Linn.	Hydrocharitaceae	-	Herb	Oct-Apr
7.	Angiosperm	<i>Limnophilaheterophylla</i> , (Roxb.)Griseb.	Liliaceae	-	Herb	July-Nov
8.	Angiosperm	<i>Eichhorniacrassipes</i> , (Mart.)	Potenderiaceae	-	Herb	Throughout year
9.	Angiosperm	<i>Monochariahastata</i> , Presl.	Potenderiaceae	-	Herb	Dec-April
10.	Angiosperm	<i>Monochariavaginalis</i> , (Burm.f.)	Potenderiaceae	-	Herb	Nov-Apr
11.	Angiosperm	<i>Typhaangustifolia</i> , Linn.	Typhaceae	-	Herb	Jan-Sep
12.	Angiosperm	<i>Lemnaequinoctialis</i>	Araceae	-		Sep-Dec
13.	Angiosperm	<i>Cryptocoryneretrospiralis</i> , (Roxb.)	Araceae	-	Herb	Nov-May
14.	Angiosperm	<i>Potomogetonindicus</i> , Roxb.	Naiadaceae	-	Herb	Dec
15.	Angiosperm	<i>Nymphaeanouchali</i> , Burm.	Nymphaceae	<i>Kamal</i>	Aquatic herb	Feb-June
16.	Angiosperm	<i>Nymphaea pubescence</i> , Wiid.	Nymphaceae	-	Aquatic herb	Feb-June
17.	Angiosperm	<i>Limnanthemumcristatum</i> , Griesb. inDC.Prodr.	Gentianaceae	<i>Kumudini</i>	Aquatic herb	Nov-Jan
18.	Angiosperm	<i>Nelumbonucifera</i> , Gaertn.	Nelumbonzeae	-	Aquatic herb	Mar-Jan

Table 2: List of Non Hydrophytic Macrophytes

Sr. No.	Botanical Name	Family	Common Name	Habit	Phenology
1	<i>Aelluropusvillosus</i> , Trin.	Graminae	-	Herb	Dec-March
2	<i>Aeschynomeneamericana</i> , Linn.	Leguminose	-	Herb	Sep-Dec
3	<i>Aeschynomeneindica</i> , Linn.	Leguminose	-	Herb	Aug-Dec
4	<i>Alternantherraparanychioides</i> , St. Hil.	Ammaranthaceae	-	Herb	Oct-Jan
5	<i>Alternantherrasessilis</i> , Linn.	Ammaranthaceae	-	Herb	June-April
6	<i>Ammaniabaccifera</i> , Linn.	Lythraceae	<i>Bhar-Jhambhal</i>	Herb	Aug-Apr
7	<i>Argemonmaxicana</i> , Linn.	Papaveraceae	<i>Pivaladhotara</i>	Herb	Feb-June
8	<i>Centellaasiatica</i> , Linn.	Apiaceae	<i>Brahmi</i>	Herb	May-Dec
9	<i>Coldeniaprocumbense</i> , Linn.	Boraginace	<i>Tripakshi</i>	Herb	Aug-Apr
10	<i>Coloocasiaesculenta</i> , Linn.	Araceae	<i>Alu</i>	Herb	July-Nov
11	<i>Commelinabenghalensis</i> , Linn.	Commelinaceae	-	Herb	June-Dec
12	<i>Commelinadianthifolia</i>	Commelinaceae	-	Herb	July-Oct
13	<i>Commelinadiffusa</i> , Linn.	Commelinaceae	-	Herb	July-Feb
14	<i>Cressacretica</i> , Linn.	Convolvulace	<i>Lona</i>	Herb	March-June
15	<i>Cynodondactylon</i> , Linn.	Graminae	-	Herb	Throughout year
16	<i>Cyprus routundus</i> , Linn.	Cyperaceae	-	Herb	June-Nov
17	<i>Dentellarepens</i> , Forst.	Rubiaceae	-	Herb	Apr-Oct
18	<i>Ecliptaerecta</i> , Linn.	Composite	<i>Maka</i>	Herb	Throughout year
19	<i>Fimbristyliscrystallina</i>	Cyperaceae	-	Herb	Nov
20	<i>Grangeamaderaspatana</i> , poir.	Composite	-	Herb	Dec-Mar
21	<i>Heliotropiumindicum</i> , Linn.	Boraginace	<i>Bhurundi</i>	Herb	Oct-Feb
22	<i>Heliotropiumovalifolium</i> , Forssk.	Boraginace	-	Herb	Aug-May
23	<i>Heliotropiumsupinum</i> , Linn.	Boraginace	-	Herb	Sep-May
24	<i>Hydroleazeylanica</i> , Vahl, Symb.	Hydrophyllaceae	<i>Popti</i>	Herb	Nov-May
25	<i>Hygrophyllapolysperma</i> , T. Anders.	Acanthaceae	-	Herb	June-Nov
26	<i>Hygrophyllaserphyllum</i> , T. Anders.	Acanthaceae	<i>Tantewan</i>	Herb	Sep-Apr
27	<i>Ipomoea aquatica</i> , Forssk.	Convolvulace	<i>Nalichi-bhagi</i>	Herb	Sep-Dec
28	<i>Ipomoea crnea</i> , Jacq.	Convolvulace	<i>Besharam</i>	Herb	Throughout year
29	<i>Launaeaprocumbens</i> , (Roxb.)	Composite	<i>Pathari</i>	Herb	Oct-Feb
30	<i>Lippanodiflora</i> , Michaux, Fl. Bor.	Verbinaceae	<i>Rutolia</i>	Herb	Sep-Apr
31	<i>Ludwigiasuffruticosa</i> , Wall.	Onagraceae	<i>Panlavang</i>	Herb	June-Oct
32	<i>Mollugopentaphylla</i> , Linn.	Molluginaceae	<i>Jharasi</i>	Herb	Sep-Jan
33	<i>Oxalis corniculatum</i> , Linn.	Oxalidaceae	<i>Ambusi</i>	Herb	Throughout year
34	<i>Polygonumglabrum</i> , Wiid	Polygonaceae	<i>Sheral</i>	Herb	Sep-Dec
35	<i>Polygonumplebium</i> , R. Br.	Polygonaceae	-	Herb	Oct-June
37	<i>Schoenopleausarticulatus</i> , Linn.	Cyperaceae	-	Herb	July-Dec
38	<i>Spilanthesakmella</i> Var. <i>Paniculata</i> , (DC.)	Composite	<i>Akkalkhar</i>	Herb	Oct-Mar
39	<i>Xyrisindica</i> , Linn.	Xyridaceae	<i>Dadumari</i>	Herb	Nov-Apr

4. Discussion

Total 18 hydrophytes are recorded from various ponds in coastal area of Palghar district. Among them 1 is algae, 1 ispteridophyte and 16 are angiosperm. In this 9 taxa are submerges, 7 are free floating and 2 marshy plants.

Also a list of total non hydrophytic macrophytes is prepared. In the present hours it is necessary to protection macrophytic plants to save the aquatic flora.

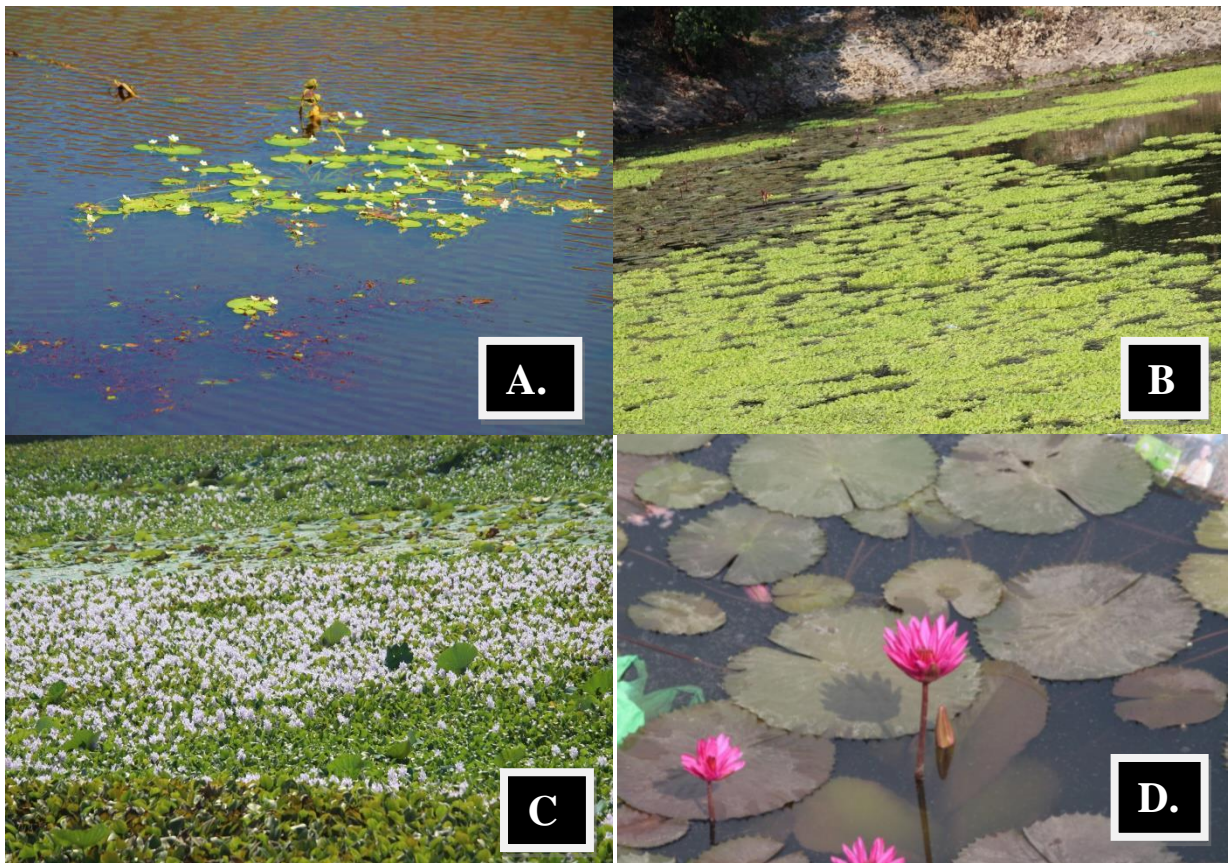
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Plate-1 Ponds in coast of Palghar district:



- A. Showing vegetation of *Limnanthemum cristatum*, Griesb. in DC. Prodr.
- B. Showing vegetation of *Pistia stratiotes*, Linn.
- C. showing vegetation of *Eichhornia crassipes*, (Mart.)
- D. Showing vegetation of *Nymphaea pubescence*, Wild.

Plate-2 Some hydrophytes in the ponds present in coastal area of Palghar District:



A. *Monochoria hastata*, Linn.

C. *Eichhornia crassipes*, (Mart.)

E. *Salvinia molesta*, D.S. Mitch

B. *Nymphaea pubescence*, Wild.

D. *Vallisneria spiralis*, Linn.

F. *Pistia stratiotes*, Linn.

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