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Aquatic Macrophytes of Singabhupalem Lake in Telangana State

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Abstract: **Aquatic macrophytes are predominantly grown in water. These are considered as important constituents of aquatic ecosystem. The survey has been carried out to investigate the marshy and aquatic macrophytes of Singabhupalem lake, T.S. 61 species belonging to 52 different genera of four groups of aquatic plant life, Algae (3species), Bryophytes (2 species), Pteridophytes (4species) and Angiosperms (52 species) were recorded. The name of the species, family and habitat of the marshy and aquatic macrophytes has also been noted in the present paper.**

Keywords**: Marshy, Aquatic macrophytes and Singabhupalem.**

1. INTRODUCTION

The species of plants which are generally grown in water are called aquatic plants (Muenscher, 1994). Aquatic macrophytes are basically uninfluenced by environmental alterations in comparison to the terrestrial plants. Diversity of living organisms refers to variety of plants animals microbial in certain ecosystem. This refers to terrestrial, aquatic and manmade field areas. Aquatic ecosystems are suitable for diversity of biotic and abiotics. Aquatic macrophytes are most universal, they are varying in their habitat and habit, actively grow forever or periodically submerged, floating and emerged plants. Aquatic life always depends on water streams (Millman et.al. 2005). Macrophytes constitute a very prominent characteristic of an water body (Sharma et.al. 2007). They oxygenate water and are important for survival of aquatic fauna. Hydrophytes respond to the changes in water quality and used as bioindicators of water pollution (Tripathi and Shukla 1991).

2. MATERIALS AND METHODS

Geographical position of the site: Singabhupalem lake is located in Singabhupalem village, Kothagudem town, Bhadradri district, geographically situated in $17^{0}29^{1}6^{11}$ North and $80^{0}33^{1}13^{11}$ East longitude. It is biggest fresh water lake in Telangana state with rich marshy and aquatic flora. The lake is main source of drinking and also irrigation. Growth of Aquatic vegetation mainly depend upon the availability of soil moisture, water, light, pH and other physico-chemical parameters. A thorough survey of Marshy and aquatic vegetation was made during the period of one year from January 2016 – December 2016 which covered all the four seasons, winter, summer, monsoon rains and post monsoon and also focus on water quality parameters.

Collection: Sample collection was carried out during January 2016 to December 2016. During the study period aquatic macrophytes were collected from different stations of selected lake. The marshy and aquatic macrophytes were collected by quadrate method and transferred into large polythene bottles and polythene covers. These specimens were treated with 2% mercury chloride for sterilization and were pressed on herbarium sheets for further study.

The present enumeration deals with 61 species of Marshy and Aquatic macrophytes belonging to 52 genera of four different categories Algae, Bryophytes, Pteridophytes and Angiosperms which are depending on their contact with soil, water and air and classified into following groups 1. Floating hydrophytes, 2. Submerged hydrophytes. 3. Emergent hydrophytes and 4. Wet land hydrophytes.

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Identification: Macrophytes of different aquatic bodies are studies by using standared literature such as Wetzel (1975), Meshram (2003), Raut and Pejawar (2005) and Ambasht (2005), Ambasht, R.S. (2005), Billore, D.K., Vyas, I.N. (1961) ,Chambers (2001), Verma (1981), Majid (2000) and Choudary (2002).

- **Floating hydrophytes:** The aquatic plants which have no communication with soil, plants are basically attached species with free floating on the surface of water. Attached hydrophytes with floating branches and attached hydrophytes with floating leaves. In the present survey 14 species were recorded.
- **Submerged hydrophytes:** The aquatic plants permanently survive under water surface and are grouped into 2 Categories such as suspended submerged hydrophytes and attached submerged hydrophytes, In the present survey 10 species were observed.
- **Emergent amphibious hydrophytes:** The plants rooted in muddy substratum with their branches floating on the water surface, In the present survey 7 species of 10 genera identified.
- **Wet land hydrophytes:** the plants rooted attached to soil saturated with water, these may also sustain in dried areas in the subsequent part of their life. In the present survey it includes 30 species were recorded.
- Systematic enumeration and habitat of each species is shown in Table-II.

3. RESULTS AND DISCUSSION

Table I: presents the physico-chemical parameters of Singabhupalem Lake.

Parameter	Range (min-max)
Altitude	610 m above sea level
Temperature (^{0}C)	10-49
Rainfall	800 mm
pH	6-8
BOD (mg/l)	0.5-6.5
COD(mg/l)	0.6-8.5
DO (mg/l)	3-8
Total hardness(mg/l)	300-370

Entirely 61 species belonging to 52 genera and 34 families were noted from the study site. Out of them Cyperaceae was dominant having 9 species belonging to 5 genera. List of aquatic group in percentage is shown in table-III.

Table II: List of Macrophytes recorded from Singabhupalem lake

S.NO	NAME OF THE SPECIES	FAMILY	HABITAT
Free Floating			
1	*Hydrodictyon indicum*	Hydrodictyaceae	A free floating alga
2	*Riccia fluitans*	Ricciaceae	Free floating
3	*Azolla pinnata*	Azollaceae	Free floating herb
4	*Salvinia natans*	Salviniaceae	Free floating herb
5	*Pistia stratiotes*	Araceae	A free floating herb with rosette leaves
6	*Ceratophyllum demersum*	Ceratophyllaceae	Submerged free floating herb
7	*Lemna perpusilla*	Lemnaceae	A free floating herb with single root.
8	*Wolffia globosa*	Lemnaceae	A free floating herb without roots
9	*Utricularia caerulea*	Lentibulariaceae	Annual free floating herb
10	*Nelumbo nucifera*	Nelumbonaceae	A floating and rooted herb
11	*Nymphaea nouchali*	Nympheaceae	A floating and rooted herb
12	*Nymphea pubscens*	Nympheaceae	A floating and rooted herb
13	*Eichornia crassipes*	Pontederiaceae	Free floating herb
14	*Trapa natans*	Trapaceae	A free floating herb
Submerged			
15	*Chara zeylanika*	Characeae	A submerged alga
16	*Nitella furcata*	Characeae	A submerged alga

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17	*Equisetum debile*	Equisetaceae	A submerged rooted herb
18	*Aponogeton natans*	Aponogetanaceae	Perennial submerged rooted herb
19	*Hydrilla verticillata*	Hydrocharitaceae	A submerged and rooted herb
20	*Ottelia alismoides*	Hydrocharitaceae	Perennial submerged rooted herb
21	*Vallisnaria natans*	Hydrocharitaceae	Submerged rooted stoloniferous herb
22	*Najas graminea*	Najadaceae	Submerged herb
23	*Najas marina*	Najadaceae	Submerged herb
24	*Potamogeton nodosus*	Potamogetanaceae	Submerged herb
Emergent			
25	*Limnophyton obtusifolium*	Alismataceae	Perennial,emergent amphibious
26	*Sagittaria guayanensis*	Alismataceae	Perennial,emergent amphibious
27	*Sagittaria trifolia*	Alismataceae	Perennial,emergent amphibious
28	*Schoenopiectus articulate*	Cyperaceae	Emergent aquatic herb
29	*Scirpus articulatus*	Cyperaceae	Emergent aquatic herb
30	*Scirpus litoratis*	Cyperaceae	Emergent aquatic herb
31	*Scirpus maritimus*	Cyperaceae	Emergent aquatic herb
Marshy/wet land			
32	*Funaria hydrometrica*	Funariaceae	Marshy herb
33	*Marsilea minuta*	Marsileaceae	An amphibious herb
34	*Hygrophylla auriculata*	Acantahceae	An erect amphibious herb
35	*Colocasia esculenta*	Araceae	Rooted herb
36	*Eclipta prostrate*	Asteraceae	A marshy herb
37	*Caesulia axillaris*	Asteraceae	A marshy herb
38	*Cotula hemisphaerica*	Asteraceae	A marshy herb
39	*Ipomoea aquatic*	Convolvulaceae	Aquatic trailing herb
40	*Ipomoea carnea*	Convolvulaceae	Aquatic trailing herb
41	*Cyperous compactus*	Cyperaceae	A marshy herb
42	*Cyperus iria*	Cyperaceae	A marshy annual harb
43	*Cyparus Laevigatus*	Cyperaceae	Common moist rice field
44	*Eleocharis acutangula*	Cyperaceae	Annual marshy herb
45	*Fimbristylis quinquangularis*	Cyperaceae	Perennial marshy herb
46	*Bergia capensis*	Elatinaceae	Annual erect marshy herb
47	*Juncus prismatocarpus*	Juncaceae	Small marshy herb
48	*Aeschynomemene aspera*	Fabaceae(Faboideae)	Erect aquatic herb
49	*Mimosa pudica*	Fabaceae(Mimosoideae)	An amphibious herb
50	*Nymphoides indica*	Menyanthaceae	Perennial floating herb
51	*Ludwigia adscendens*	Onagraceae	Common in marshy areas
52	*Phragmites karka*	Poaceae	Marsh herb
53	*Oryza refipogon*	Poaceae	Marshy herb
54	*Monochoria vaginalis*	Pontederiaceae	Perennial aquatic herb
55	*Bacopa monnieri*	Scrophulariaceae	Marshy herb
56	*Limnophila indica*	Scrophulariaceae	Marshy herb
57	*Veronica anagallis*	Scrophulariaceae	Marshy herb
58	*Typha angustifolia*	Typhaceae	Perennial aquatic herb
59	*Typha latifolia*	Typhaceae	Perennial aquatic herb
60	*Xyris pauciflora*	Xyridaceae	Marshy rooted herb
61	*Zannichellia palustris*	Zannichelliaceae	Suspended herb

Table III: List of Aquatic group in percentage.

Aquatic group	**Number of species**	**Percentage**
Floating	14	23.9%
Submerged	10	16.3%
Emergent	07	11.4%
Marshy/Wet land	**30**	**49.1%**
Total	**61**	

4. CONCLUSION

Among all the macrophytes collected from Singabhupalem lake Marshy and wet land species were found to be high followed by free floating, Submerged and emergent. These aquatic plants serve as food for aquatic animals like aquatic snails, insects, aquatic birds and fish.

REFERENCES

[1] Ambasht, R.S. (2005). *Macrophytes limnology in the Indian Subcontinent*. Ukaaz Publication. Hyderabad: 58-174.

[2] APHA 1995. *Standard methods for the examination of water and waste water*. 19th Ed. American Public health association. American water works Association and water pollution control federation, Washington DC.

[3] Arber A 1920 Water plants: *A study of Aquatic Angiosperms*. Cambridge Univ. press, London.

[4] Chambers, P.A., P. Lacoul, K.J., Murphy, S.M. (2010): *World checklist of Macrophyte species*. Published on the Internet, http://fada. biodiversity. Be /group /show/60accessed10august

[5] Chaudhary MK 1998: *A study of Hydrophytes at Najibabad (Bijnor) UP*. MSc Thesis, HNB Garhwal univ, Srinagar, Pauri Garhwal (Uttaranchal)

[6] Choudary Manoj Kumar 2002: Aquatic macrophytes of Jajibabad (Bijnor) U.P., *J.Indian bot soc* 8111-15.

[7] Cook, C.D.K.(1996). *Aquatic and Wetland plants in India.* Oxford University press. London.

[8] Fassett NC 2000: *A manual of Aquatic plants, Agrobios (India).* Jodhpur.

[9] Kumar, M. and Singh, J. (1987) *Environmental impacts of Aquatic weeds and their classification*. Proceedings of the work shop on management of Aquatic weeds, Amritsar, Panjab, India.

[10] Majid, F.Z.2000: Aquatic weeds: Utility and Development, Agrobios (India), Jodhpur Pp 96.

[11] Manoj Kumar Chaudhary and Mukesh Kumar 2002: *Aquatic macrophytes of Najibabad (Bijnor) UP*. J.Indian bot Soc Vol 81 (2002) 11-15.

[12] Patil V.G., Khabade S.A. and Khade S.K. (2012): *Study of hydrophytes and amphibious plants occurred in Panchaganda River in vicinity of Ichal karanji city district Kolhapur, Maharashtra.* Ecology and Fisheries 5(2) : 63-66.

[13] Rama Rao. K., Ramakrishna.N and Amravathi. D (2014). *Check list of the Aquatic Macrophyte flora Abundance in Lower Manair Dam at Karimnagar Dt. Andhra Pradesh, India.* IOSR Journal of Environmental Science, Toxicology and food technology (IOSR-JESTFT) e-ISSN: pp 11-20.

[14] Raut, Narayana. S.and Pejaver Madhuri. (2005).Survey of diversity of plankton attached to macrophytes from weed infected lakes. J. *Aqua.Biol.*20 (1): 1-7.

[15] Subhramanyam K1962: *Aquatic Angiosperm,* Botanical monograph (3) CSIR New Delhi.

[16] Varma, S.K.1981: *Flora of Bhagalpur (Dicotyledons),* Today and tomorrow printers and publishers, New Delhi.Pp414.

[17] Vyas L.N.1964: *A study of the hydrophytes and marshy plants of Alawar*. J. Indian.Bot.soc.43:17-30.