

## Aquatic and Semi-Aquatic Flora (Monocotyledons) Of Lalitpur District (U.P.), India.

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**Abstract:** The distribution of 73 aquatic and semi-aquatic angiospermic species belonging to 39 genera and 19 families collected from all three tahsils (Lalitpur, Mahroni and Talbahat) of Lalitpur district of Uttar-Pradesh are enumerated. The members of family Cyperaceae exhibit their dominance followed by Hydrocharitaceae, Commelinaceae and Aracaceae with 33, 5, 4 and 4 species respectively.

**Key Words:** Aquatic and semi-aquatic Flora, Monocotyledons, Lalitpur.

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### I. Introduction

Aquatic and semi-aquatic plants are those species which normally stands in water and must grow for at least a part of their life cycle in water, either completely submerged or emerged [1]. Aquatic angiosperms are very remarkable forms of plant life, mainly on account of the fact that due to aquatic habit [2], in which they spend most of their lives, they are practically unaffected by climatic and seasonal changes, or atleast much less affected than lands plants. For this reason it is possible to study such plants more or less through out the year. Lalitpur District is rich in aquatic and semi-aquatic vegetation due to presence of artificial and natural lakes , nullahas , and ponds, such as Matatila, Jamni, Rohini, Govind Sagar, Sajnam dam, hajariya shankerji ka mansarover, Shahpur pond , Poorakala pond, Shahjad river and dulaawan pond. The District is situated in South-west of Uttar Pradesh in between 24.11-25.77 N and 78.79 E. This is most backward District of bundelkhand.

Except for the classical work Subramanyam [3] of there was no serious effort to study the aquatic and semi-aquatic angiosperms of India. It is against this back drop that the present study was undertaken to explore the Lalitpur district especially to make an exhaustive inventory of aquatic and semi-aquatic angiosperms of this area.

The present study was carried out during 2010 - 2012 in deferent seasons of the year. Many selected water bodies of the District in different Tehsils and places like Talbahat, Lalitpur, Mahroni (AllTehsils), Hinaota, Bijrautha, Paron, Bansi, Bar, Birdha and Madanpur were regularly surveyd. The plant species were collected in their flowering, fruiting or at fully mature stage. Attempts have been made to note down plant size, flower colour, fruit type, flowering period, habit and habitats, medicinal uses, common name and other characteristics. Plant specimens soon after the collection were labelled and placed in the polythene bags. Every time 4-5 specimens were collected. These plant specimens were carefully pressed between the news papers. After pressing, drying and poisoning the specimens were pasted on the herbarium sheets with fevicol. Voucher herbarium specimens were deposited in the department of Botany, Pt. J. N. P. G. College, Banda (U.P.). The plants were identified with the help of regional floras [4,5,6,7] and other important publications mentioned in references. Ecology and distribution of these plants were described and families are arranged accordingly Bentham and Hooker's classification [8].

### II. Results And Discussion

The results of the survey are given in Table-1 with ecological distribution common (C) and rare ( R ) in different tehsils Talbahat ( T ) Lalitpur (L) and Mahroni (M) .

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Table-1 Aquatic and Semi-Aquatic plants (Monocotyledons) From Lalitpur District.

Sr.no.	Family / plant name	Distribution			Aquatic/Semi-Aquatic plants	Flowering-Fruiting
		T	M	L		
1.	<b>HYDROCHARITACEAE</b>					
	1. <i>Hydrilla verticillata</i> (Linn. f.) Royle.	R	C	C	Aquatic	July – Dec.
	2. <i>Hydrocharis dubia</i> (Blume) Backer.	C	C	C	Aquatic	Aug. - Dec.
	3. <i>Nehamandra alternifolia</i> (Roxb.) Thw.	C	R	C	Aquatic	Aug. – Jan.
	4. <i>Ottelia olismoides</i> (Linn.) Pers.	C	C	C	Aquatic	sept. – Dec.
2.	5. <i>Vallisneria spiralis</i> Linn.	C	R	C	Aquatic	Jan. – April
	<b>ZINGIBERACEAE</b>					
	<i>Costus speciosus</i> (Koenig) Smith.	R	C	C	Semi-aquatic	Aug. - Oct.
	3. <b>CANNACEAE</b>					
	<i>Canna indica</i> Linn.	C	C	C	Semi-aquatic	March-Sept.
4.	<b>AMARYLLEDACEAE</b>					
	<i>Crinum defixum</i> Ker-Gawl.	C	C	R	Semi-aquatic	Aug. - Nov.
5.	<b>LILIACEAE</b>					
	<i>Asphodelus tenuifolius</i> Cav.	C	R	C	Semi-aquatic	Nov.-June
6.	<b>PONTERIACEAE</b>					
	1. <i>Eichornia crassipes</i> (Mart.) Solms.	C	C	C	Aquatic	March-Nov.
	2. <i>Monochoria hastate</i> (Linn.) Solms.	C	C	C	Aquatic	July-Oct.
	3. <i>M. vaginalis</i> (Burm. F.) Presl.	C	C	R	Aquatic	Sep.-Oct.
7.	<b>COMMELINACEAE</b>					
	1. <i>Amischophacelus axillaris</i> (Linn.) Rolla Rao et Kammathy.	R	C	C	Semi-aquatic	Aug. –Oct.
	2. <i>Commelina benghalensis</i> Linn.	C	C	C	Semi-aquatic	June- Nov.
	3. <i>C. diffusa</i> Burm. f.	C	C	C	Semi-aquatic	Aug.-Oct.
	4. <i>Murdannia nudiflora</i> (Linn.) Brenan.	C	C	C	Semi-aquatic	Aug.-Nov.
8.	<b>JUNCACEAE</b>					
	<i>Juncus bifonius</i> Linn.	C	R	C	Semi-aquatic	Jan.- March
9.	<b>TYPHACEAE</b>					
	1. <i>Typha domingensis</i> Pers.	C	C	C	Aquatic	July – Nov.
	2. <i>T. elephantina</i> Roxb.	C	C	C	Aquatic	March-Aug.
10.	<b>SPARGANIACEAE</b>					
	<i>Sparganium ramosus</i> Huds.	C	C	R	Aquatic	Feb.-June
11.	<b>ARACACEAE</b>					
	1. <i>Acorus calamus</i> Linn.	R	R	C	Semi-aquatic	Oct.-Feb.
	2. <i>Colocasia esculenta</i> (Linn.) Schott.	C	C	R	Semi-aquatic	Nov.-March
	3. <i>Pistia stratiotes</i> Linn.	C	C	C	Aquatic	Aug.-Nov.
	4. <i>Typhonium trilobatum</i> (Linn.) Schott.	C	R	C	Semi-aquatic	July-Nov.
12.	<b>LEMNACEAE</b>					
	1. <i>Lemna perpusilla</i> Terrey.	C	C	C	Aquatic	May-Jan.
	2. <i>Spirodella polyrrhiza</i> (Linn.) Schleid.	C	C	C	Aquatic	Feb.-April
	3. <i>Wolffia arrhiza</i> (Linn.) Horkel ex Wimm.	C	C	C	Aquatic	June-Oct.
13.	<b>ALISMACEAE</b>					
	1. <i>Alisma plantagoaquatica</i> Linn.	R	C	C	Semi-aquatic	Aug.-Jan.
	2. <i>Sagittaria guayanensis</i> H.B. &K.	C	C	C	Semi-aquatic	Sep.- Oct.
	3. <i>S. sagittifolia</i> Linn.	C	C	C	Aquatic	Oct.-March
14.	<b>BUTOMACEAE</b>					
	1. <i>Butomus umbellatus</i> Linn.	C	R	C	Semi-aquatic	Oct.-Jan.
	2. <i>Tenagocharis latifolia</i> Hochst.,	R	C	C	Semi-aquatic	Sep.-Jan.
15.	<b>APONOGETONACEAE</b>					
	1. <i>Aponogeton crispus</i> Thumb.	C	C	C	Aquatic	Sep.-Nov.
	2. <i>A. natans</i> Engl.	C	C	C	Aquatic	Aug. –Nov.
16.	<b>POTAMOGETONACEAE</b>					
	1. <i>Potamogeton crispus</i> Linn.	C	C	C	Aquatic	Dec.–March
	2. <i>P. nodosus</i> Poir.	C	C	C	Aquatic	Nov.–March
	3. <i>P. pectinatus</i> Linn.	R	C	C	Aquatic	Dec.–March
17.	<b>NAJADACEAE</b>					
	1. <i>Najas graminea</i> Del.	C	C	C	Aquatic	Sept. - Dec.
	2. <i>N. minor</i> All.	C	R	C	Aquatic	Aug. – Dec.

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<b>18.</b>	<b>ERIOCAULACEAE</b> <i>Eriocaulon guinguangulare</i> Linn.	R	C	C	Semi-aquatic	Aug. – Nov.
<b>19.</b>	<b>CYPERACEAE</b> 1. <i>Bulbostylis barbata</i> (Rottb.) Kunth.	C	C	C	Semi-aquatic	July – Sep.
	2. <i>Carex fedia</i> Nees.	C	C	C	Semi-aquatic	Feb. – April
	3. <i>Cyperus alopecuroides</i> Rottb.	C	C	R	Semi-aquatic	Aug.- Nov.
	4. <i>C. brevifolius</i> (Rottb.) Hassk.	C	C	C	Semi-aquatic	March- Nov.
	5. <i>C. compactus</i> Retz.	C	C	C	Semi-aquatic	Aug. – Nov.
	6. <i>C. compressus</i> Linn.	C	C	C	Semi-aquatic	July – Oct.
	7. <i>C. cyperoides</i> (Linn.) O. Kuntze.	R	C	C	Semi-aquatic	Sep.–Oct.
	8. <i>C. difformis</i> Linn.	C	C	C	Semi-aquatic	Aug. – Jan.
	9. <i>C. exaltatus</i> Retz.	C	C	C	Semi-aquatic	Sept.-Dec.
	10. <i>C. iria</i> Linn.	C	R	C	Semi-aquatic	Aug.– Dec
	11. <i>C. platystylis</i> R. Br.	C	C	C	Aquatic	April- Sep.
	12. <i>C. sanguinolentus</i> Vahl,	R	R	C	Semi-aquatic	July-Oct.
	13. <i>C. squarrosus</i> Linn.	C	C	C	Semi-aquatic	April-Dec.
	14. <i>C. triceps</i> (Rottb.) Endl.	C	C	C	Semi-aquatic	July-Nov.
	15. <i>Eliocharis atropurpurea</i> (Retz.) Kunth.	C	C	C	Semi-aquatic	July – Nov.
	16. <i>E. congesta</i> D. Don.	C	C	C	Semi-aquatic	Sep.-Dec.
	17. <i>E. dulcis</i> (Burm. f.) Trin.	C	C	C	Aquatic	Sept.-Jan.
	18. <i>E. palustris</i> (Linn.) R. Br.	C	C	C	Semi-aquatic	Dec.-March
	19. <i>Fimbristylis aestivalis</i> (Retz.) Vahl.	R	C	R	Semi-aquatic	Aug. – Dec.
	20. <i>F. dichotoma</i> (Linn.) Vahl.	C	C	C	Semi-aquatic	March– Dec.
	21. <i>F. littoralis</i> Gaudich.	C	C	C	Semi-aquatic	Sept. – Nov.
	22. <i>F. ovata</i> (Burm. f.) Kern.	C	C	C	Semi-aquatic	Aug. -Dec.
	23. <i>F. tenera</i> Schult.	C	C	C	Semi-aquatic	Sept. -Nov.
	24. <i>F. tetragona</i> R. Br.	C	C	C	Semi-aquatic	Aug. -Oct.
	25. <i>Rhynchospora hookeri</i> Boeck.	C	C	R	Semi-aquatic	Aug. -Oct.
	26. <i>Scirpus affinis</i> Roth.	C	C	R	Semi-aquatic	Feb. – June
	27. <i>S. articulatus</i> Linn.	C	C	C	Semi-aquatic	Oct.- March
	28. <i>S. grossus</i> Linn.	C	C	C	Aquatic	July-Oct.
	29. <i>S. juncoides</i> (Schult.) Roxb.	R	C	C	Aquatic	Aug. – Nov.
	30. <i>S. maritimus</i> Linn.	C	C	C	Semi-aquatic	Feb.-June
	31. <i>S. mucronatus</i> Linn.	C	C	C	Aquatic	Oct. –March
	32. <i>S. squarrosus</i> Linn.	C	C	C	Semi-aquatic	Sept. – Dec.
	33. <i>S. supinus</i> Linn.	C	C	C	Semi-aquatic	July-Nov.

### III. Acknowledgment

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