

## FLORISTIC DIVERSITY IN THE WETLANDS OF KARALI DISTRICT, RAJASTHAN, INDIA: A SURVEY OF PANCHANA DAM

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### ABSTRACT

*The present work embodied the results of intensive survey of the aquatic and wetland vegetation of Panchana dam and the surrounding area. This work gives the recent and relevant information and identification of the hydrophytes and wetland plants of the region. The aquatic and wetland flora comprised of 112 species of Angiosperms belonging to 101 genera and 50 families. The ratio of monocots to dicots was 1:2.6 for families. The five dominant families of hydrophytes were Poaceae, Cyperaceae, Asteraceae, Scrophulariaceae and Fabaceae. Besides this, two species of aquatic ferns (Pteridophytes) observed were Marsilea minuta and Azolla pinnata.*

**Keywords:** Aquatic Macrophytes, Floristic, Karali.

### Introduction

The importance of aquatic and wetland plant diversity for sustainable life support system is an acceptable fact throughout the world. But it is very difficult to define aquatic plants. The species which normally stand in water and grow at least a part of their life cycle in either completely submerged or emerged condition are called aquatic plants (Muencher, 1994).

According to the proposals approved by Ramsar convention (1971) "Wetlands are transitional zone which occupy intermediate position between the dry land and open water". Wetlands are also considered as ecotone between terrestrial and aquatic ecosystem (Odum, 1971). Therefore wetlands ecosystems are dominated by the influence of water and encompass a heterogeneous habitat. Considering these habitats, the survey of Panchana dam near Karali town is undertaken. Panchana dam is situated at 6 kms. distance in the north of Karali town. It is an aquatic habitat. It is called by the name of Panchana dam because it includes five rivers. Karali town was established by a Yadav king Arjun Pal in the year 1348 A.D. Its original name was Kalayanpur adopted after famous Kalayanji temple.

The present work is the outcome of intensive plant survey and exploration in the study area by the author in 2021-22. During the plant collection tours and plant specimens were carefully collected, pressed and preserved.

### Materials and Methods

#### Study Area

The district Karali lies between 26°3' and 26°49' North latitudes and 76° 35' and 77° 26' East longitudes with a total area of 5070 Sq Kms. And approximately it covers 1.5 percent of the total area of Rajasthan. With an average height of 400-600 meters from sea level. In the present investigation, the area selected for study is Panchana Dam, situated in the Eastern part of Rajasthan between the parallels 26° 10' and 26° 36' north latitudes and 76° 45' and 77° 20' east longitude at a height of 400 meters above mean sea level and adjoining with the neighbouring state of Madhya Pradesh. Its western boundary touches the Dausa district, South western sides Sawaimadhopur, North-East and North-West boundary touch to Bharatpur district of Rajasthan. The total area of district is near about 5070 square kms.

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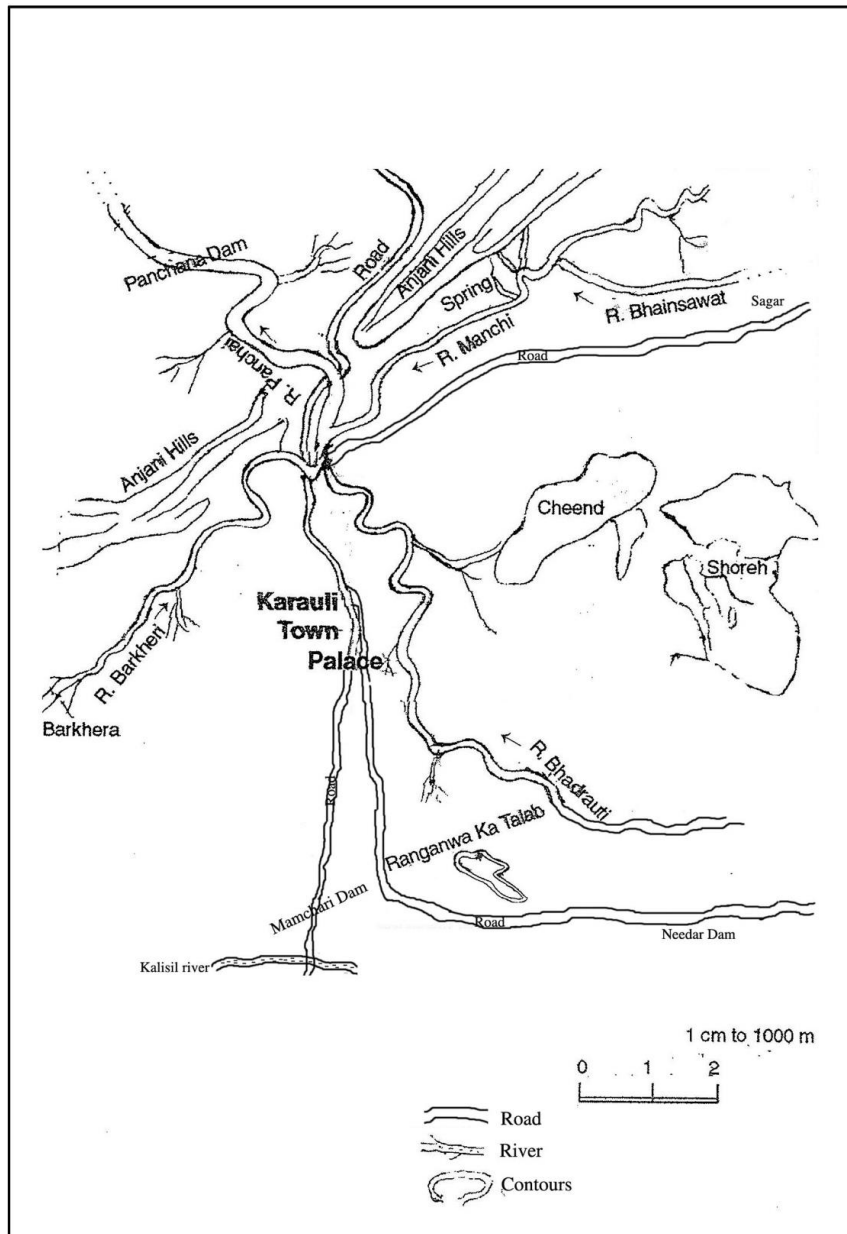
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Meteorological data for Karauli observatory are available. The cold season starts by the middle of November and last up to February, January being the coldest month. The minimum temperature sometimes dropped  $1^{\circ}$  or  $2^{\circ}$  c. Both day night temperatures were raised rapidly from February onwards reaching their highest point in late May or early June. During the summer months temperature were some times as high as  $49^{\circ}$  C.

The present study was undertaken during the course of floristic study (2021-22) and the aquatic and wetland plants were collected in different seasons. After drying up of the specimens are preserved in the Herbarium of PG Department of Botany, Govt. College Karauli. The specimens were identified with the help of available literature (Hooker, 1872-1897; Biswas and Calder, 1937; Sharma 2002) and Herbarium of Deptt. Of Botany, university of Rajasthan Jaipur.

#### Geographical Location of Study Area (Panchana Dam)



**Table 1: Major Aquatic and Wetland plants of study area**

S. No.	Botanical Name	Family	Phenology	Flower colour	Field number
1.	<i>Ranunculussceleratus</i> L.	Ranunculaceae	March-June	Yellow	64
2.	<i>Nymphaea nauchali</i> Burm.f.	Nymphaeaceae	Aug.-feb.	White	72
3.	<i>Nymphaea Pubescens</i> Willd.	Nymphaeaceae	Aug.-Jan.	Red or White	110
4.	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Aug.-Nov.	Light pink	220
5.	<i>Corchorus capsularis</i> L.	Tiliaceae	Aug.-oct.	Yellow	310
6.	<i>Oxalis corniculata</i> L.	Oxalidaceae	All year	Yellow	150
7.	<i>Tephrosia strigose</i> (Daiz.) Sant. &Maheshw.	Fabaceae	July-Oct.	Yellow	160
8.	<i>Trapa natans</i> L.	Trapaceae	Aug.-Jan.	White or Purple	280
9.	<i>Ageratum conyzoides</i> L.	Asteraceae	All year	White or Purple	450
10.	<i>Nymphoideshydrophylla</i> (Lour.) Ktze.	Menyanthaceae	Oct.-Mar.	White	380
11.	<i>Polygonum glabrum</i> Willd	Polygonaceae	All year	Pink	85
12.	<i>Ceratophyllumdemersum</i> L.	Ceratophyllaceae	Sep.-Mar.	Greenish brown	92
13.	<i>Hydrilla verticillata</i> (L.f.) Royale	Hydrocharitaceae	Oct.-Mar.	Yellowish white	115
14.	<i>Eichhornia crassipes</i> (Mart.) Solms.	Pontederiaceae	Aug.-Nov.	Blue	168
15.	<i>Typha angustata</i> Bory. &Chaub.	Typhaceae	Aug.-Jun.	Brown tip	190
16.	<i>Potamogeton crispus</i> L.	Potamogetonaceae	Nov.-Jun.	Greenish brown	240
17.	<i>Cyperus nutans</i>	Cyperaceae	Sep.-Feb.	White	320
18.	<i>Coix gigantea</i> (Gurulu)	Poaceae	Aug.-Nov.	Spikelet brown	375
19.	<i>Sacchrumspontaneum</i> L.	Poaceae	All year	Silver-Purple	205
20.	<i>Sporobolus diander</i> (Retz.) P. Beauv.	Poaceae	Aug.-Oct.	Reddish brown	235

Aquatic ferns of the area :-*Marsilea minuta*L. - Marsiliaceae, Mar.-may, *Azolla pinnata* R.Br. - Salviniaceae, Nov.-Jan.

### Results and Discussions

A careful analysis of floristic data regarding the aquatic and wetland plants of the area reveal that about 112 species of aquatic and wetland angiosperms distributed in 101 genera and 50 families are recorded from the area. Beside this 2 species of aquatic ferns *Marsilea minuta* (Marsiliaceae) and *Azolla pinnata* (Salviniaceae) are also observed in the aquatic and wetland habitats. In aquatic angiosperms the ratio of Monocots to Dicots is approximately 1:1.5 as far as no. of sps.is concerned while a comes to 1:1.5 at genera level and approximately 1:2.6 at family level. The variation in Monocot and Dicot ratio may be attributed to the greater number of Monotypic genera and families of Dicot aquatic plant species.

On the basis of their contact with soil, water and air, the hydrophytes of the area may be broadly classified into the following life-forms.

- **Free Floating** : Species like Pistiastratiales etc. come in this group.
- **Attached with Floating Leaves and/or Shoots**: Species like Ipomoea aquatica, Nymphaea nouchali, N. pubescens, Nymphoides cristata, Potamogeton nodosus etc. fall in this category.
- **Suspended Submerged**: Species like Ceratophyllum demersum, Hydrilla verticillata, Najas minor, Potamogeton pectinatus, Zannichellia palustris etc. come in this category.

- **Attached Submerged:** Species like *Ottelia alismoides*, *Potamogeton crispus* and *Vallisneria spiralis* etc. fall in this category.
- **Aquatic and/or Amphibious Emerged:** *Aeschynomene indica*, *Limnophila indica*, *Polygonum glabrum*, *Sagittaria sagittifolia*, *Typha angustata* etc. constitute this group of hydrophytes.
- **Wetlands:** A large number of plants grow in marshland habitats, particularly in low lands, rice fields and road-side puddles. The most common ones are: *Ammannia baccifera*, *Hygrophila auriculata*, *Phyla nodiflora*, most of the sedges and few grasses like *Coilacryma -jobi*, *Hemarthria compressa*, species of *Paspalidium*, *Paspalum* etc.

#### **Acknowledgment**

The Author is grateful to my supervisor department of botany, kota collage (Raj.) for him generous help.

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