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DIVERSITY OF HYDROPHYTIC PLANTS FROM SHRI SHIVAJI COLLEGE CAMPUS PARBHANI

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Abstract:

During Academic year 2021-2022 a survey was made to study diversity of Hydrophytic plants from Shri Shivaji College Campus Parbhani. During this study 08 hydrophytic plants members were recorded from Shri Shivaji College Parbhani includes plants belonging to Angiosperm and Pteridophytes. An angiosperm member includes *Bacopa, Canna, Echornia, Hydrila*, White water lily and Pteridophytes recorded are *Azolla, Marsilea* and *Salvinia*. These species are belongs from Pontederiaceae, Nymphaeaceae, Hydrocharitaceae, Salviniaceae, Marsileaceae, Cannaceae and Plantaginaceae etc. This study was made by visiting total 03 water tanks from SCP Campus. In tank I White water lily, Hydrilla Azolla Salvinea, in Tank II *Hydila Salvinia* and *Azolla*, in the garden ditch *Echornia Bacopa, Canna* and *Marsilea* species were recorded. Out of 08 hydrophytes 04 belongs to Monocot families 01 plant belongs to dicot family and 03 plant species belongs to Pteridophytes. The current paper focus on the diversity of hydrophytes, water analysis includes measurements of water temperature, BOD and Total hardness along with this current paper also focused on medicinal properties of these plants.

Key Words: Hydrophytes, Diversity**,** Medicinal properties and Azolla.

Introduction:

Hydrophytes grow in abundant quantity of water and they balanced the ecosystem. Growth of hydrophytes in water changes the physic-chemical characteristic of water body. Hydrophytes may grow as submerged plants, free floating plants, floating but rooted plants and amphibious hydrophytes. In hydrophytes roots are poorly developed may be branched or unbranched, stem is very delicate and modified to rhizome or runner. The leaves are long, circular in lotus and small in *Azolla*. Cuticle present in floating plant and it's absent in submerged plants. Stomata are also absent in submerged plants (Dalasingh et.al. 2019 and Fernandes et.al. 2016).

Shri Shivaji College is located at the center of Parbhani city. This area is full with greenery with abundant growth of various terrestrial angiospermic plants belonging to dicots and monocots plants along with

hydrophytes. The present study was focus on study diversity of hydrophytes from Shri Shivaji College campus Parbhani and its correlation ship of the water for the growth of plants.

On the basis of their growing habitat water and air the hydrophytes found are submerged hydrophytes includes Hydrilla, floating hydrophytes includes *Echornia, Salvinia, Azolla* while the floating but rooted hydrophytes recorded is Nymphaea alba and the amphibious hydrophytes is *Marsilea* from SCP campus

Material and methods:

In the academic year 2023-2024 survey was made to collect and study hydrophytic plants from Shri Shivaji College Campus During this study physico-chemical properties of water sample were analysed to record BOD of water, dissolved oxygen (DO), Water hardness and temperature of water was recorded.

The plants samples were brought in laboratory in polythene bags for correct identification with flora of Marathwada Vol. II. Water sample were analyses by using the standard methods lined in APHA (2002).

Result:

During this research study we were identified total 08 species from III tank. In which highest growth was observed of *Hydila*. The observed specimens were as follows.

Table no.01: Distribution of plant in pond/Diversity of hydrophytes in ponds

Sr. no.	Species	Botanical name	Habit	Family	Tank I	Tank II	Garden ditch III
01	Euchornia	*Pontederia crassipes*	Sub merged	Pontederiaceae	-	-	+
02	White water lily	*Nymphaea alba*	Aquatic	Nymphaeaceae	+	-	-
03	Hydrilla	*Hydrilla verticillata*	Aquatic	Hydrocharitaceae	+	+	-
04	Salvinia	*Salvinia molesta*	Aquatic	Salviniaceae	+	+	-
05	Marsilea	*Marsilea minuta*	Sub merged	Marsileaceae	-	-	+
06	Bacopa	*Bacopa monniera.*	Sub merged	Plantaginaceae	-	-	+
07	Canna	*Canna indica*	Sub merged	Cannaceae	-	-	+
08	Azolla	*Azolla pinnata*	Aquatic	Salviniaceae	+	+	-
Total					**04**	**03**	**04**

Table no.02: Water analysis

Parameter of water analysis	ml/gm
Water temperature	30^0C
Total hardness	3.723g/lit
Biological Oxygen Demand (BOD	8mg/lit

Table no.03: Collection site and photograph of Hydrophytes:

		
A -Eichornia crassipes	***B- Eichornia crassipes***	***C- Hydrilla verticillata***
		
D- Salvinia molesta	***E - Marsilea minuta***	***F- Bacopa monniera.***
		
G- Canna indica	***H- Azolla pinnata***	***I- Nymphaea alba***

Table no.04: Uses of Hydrophytes

Botanical name	**Uses**
Eichornia crassipes	Antibacterial, Anti- cancer activity (Zainab J. Taqi et.al. 2019)
Nymphaea alba	Antioxidant, hepatotoxicity, hepatoprotective activity, control inflammatory and oxidative stressrelated liver diseases (Bakr et a 2017)

Hydrilla verticillata	Antibacterial, digestion and gastrointestinal function, improves blood circulation, helps in detoxification, good for neurological health (D K Pal and S B Nimse 2005)
Salvinia molesta	Antibacterial, Antibacterial, anticancer, antifungal
Marsilea minuta	Antiinflammatory, diuretic, Depurative, Febrifuge and refrigerant (Chakrvarty et.al.2013)
Bacopa monniera.	Brain tonic, Liver protetive, antioxidant regulates blood pressure **(**Jitendra Kumar et.al. 2016**)**
Canna indica	Nuroprotective, wound heeling anti inflammatory, antioxidant (Shridevi Chigurupati et.al. 2021)
Azolla pinnata	Antibacterial, antioxidant (M.A. Farook et.al 2019)

Conclusion: In this present study total 08 plants of hydrophytes were recorded from all Tanks of Shri Shivaji college campus Parbhani. These hydrophytes plant species belongs from Pontederiaceae, Nymphaeaceae, Hydrocharitaceae, Salviniaceae, Marsileaceae and Plantaginaceae etc. family. In which 04 plants belongs from monocot, 01 Dicot, 03 Pteridophytes. These hydrophytes plants shows some medicinal properties like **Antioxidant,** Antibacterial,

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