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RESEARCH ARTICLE

ASSESSMENT OF TRADITIONAL USED AQUATIC PLANT BIODIVERSITY IN BIRLA TALAB, PILANI (RAJ.) INDIA

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ABSTRACT

The present study were carried out on traditional used aquatic plant biodiversity of Birla Talab. Various parts of plants (roots, stem, leaves, fruits, seeds etc.) or whole plant is used for medicinal purpose for various ailments. Free questionnaire surveys, participatory observation and field visits were planned to elicit information on the medicinal plants used by local community. Several of these plants are very sensitive to the fluctuations in the normal physico-chemical parameters of the Talab. A slight alteration or degradation of the Talab may result in the disappearance or the extinction of these plants. This will ultimately result in large-scale economic loss in terms of the medicinal products synthesized from these plants. Conservation strategies to protect and conserve aquatic life are necessary to maintain the balance of nature and support the availability of resources for future generations.

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INTRODUCTION

The third world nations of Asia are rich in biodiversity. Among them, India is endowed with a rich biological heritage and possesses more than 53 million tribal people belonging to 300 tribal communities, constituting about 8% of the total population of the country (Khan and Singh, 2012). The floristic diversity is fascinating because of species richness and diverse community structure. The diversity has evolved in time and space due to various geological and ecological changes, accompanied by speciation, isolation and Competition (Dangwal *et al.,* 2010). From the very earliest days of civilization, mankind has turned to plants for healing, a tradition that has survived the arrival of modern medicine and found new strength at the end of 20th century (Sullivan and Shealy, 1997). Even today, 80% of the world's population relies on traditional plant medicine (Singh, 2002). As elsewhere, in India too, the medicinal use of plants has been practiced from aeons by various rural and tribal communities through the systems of Ayurveda, Siddha and Unani (Gadgil, 1996). Need has been felt for the speedy documentation of the prized indigenous knowledge from the emerging threats of the destructive over-harvesting, habitat degradation and bio-piracy (Utkarsh *et al.,* 1999).

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Study Area

Pilani is situated in shekhawati region of Rajasthan. It is located between $28^0$21'21"N latitude and 75035'18"E longitude in Jhunjhunu district of Rajasthan in India. It is a part of the sub arid regions of the Thar desert. It is a birth place of Ghanshyam Das Birla. Pilani is famous for BITS (Birla Institute of Technology and Science) a institute of higher education.

MATERIALS AND METHODS

The present data is an outcome of extensive investigation of aquatic plants in Birla Talab during July 2012 to June 2013. Birla Talab was visited on monthly basis and specimens were collected for their propoer identification. The collected samples were botanically identified with the help of relevant scientific literature (Singh *et al.,* 2003). The traditional healers were identified and interviewed extensively during the study. In the study, questionnaire was used to collect information on the local name of the plants, part used, methods of preparation of the medicine.

RESULTS AND DISCUSSION

Aquatic Plant species of the area have been enumerate below in the alphabetical order. Each plant species is provided with its scientific name, family name , local name and its uses.

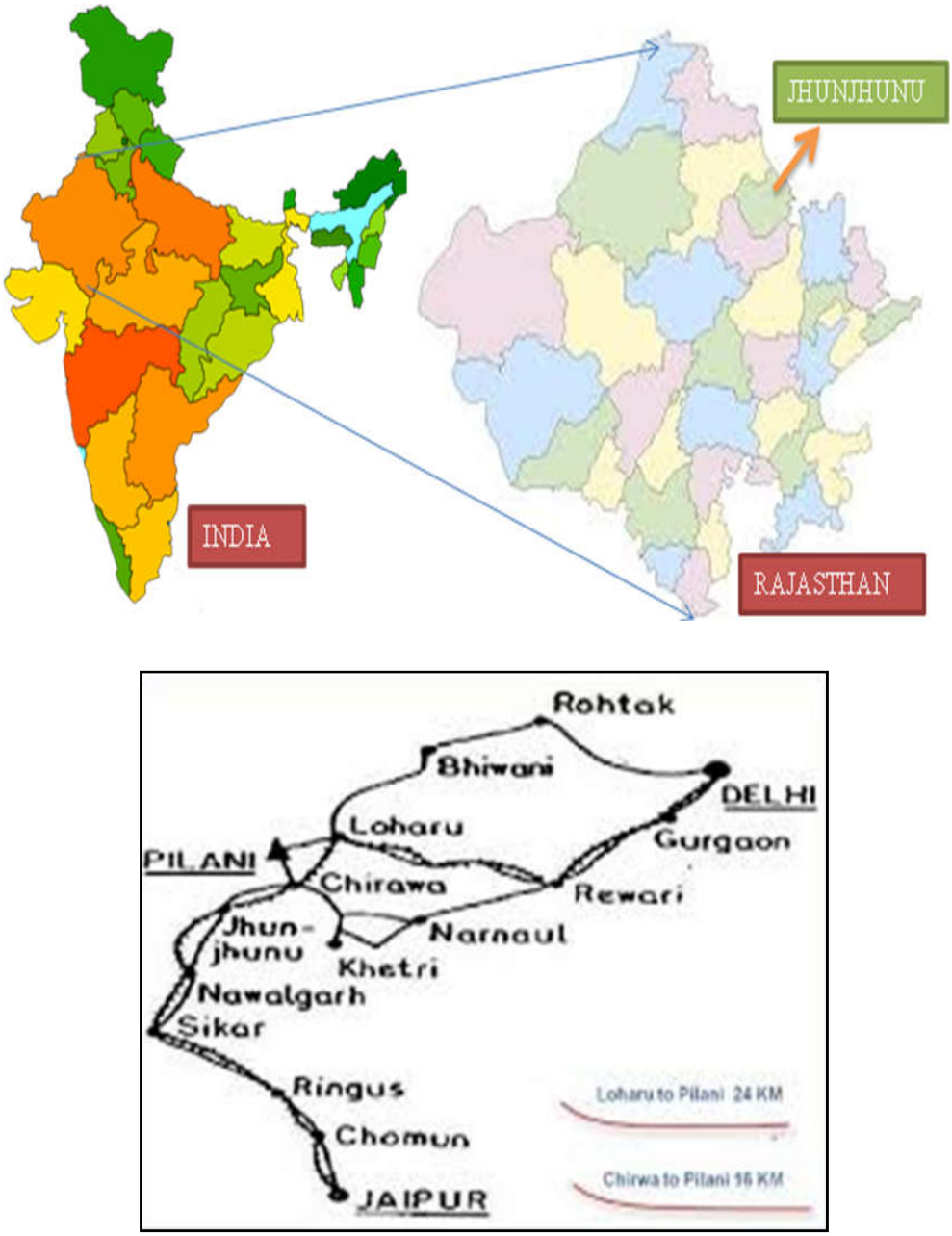

Figure 1. Map of the Study Site

1. Botanical name: *Ceratophyllum demersum*

Vernacular name: Coontail
Family name: Ceratophyllaceae
Uses: Usually floats in mats just below the surface of water. These mats provide a valuable
protection for fish fry but also provide protection for bilharzias, carrying snails and malaria or filarial carrying mosquito larvae. Used in diarrhoea, dysentery, burning sensation, epistaxis.

2.Botanical name: *Hydrilla verticillata*

Vernacular name: Indian star vine
Family name: Hydrocharitaceae
Uses: It is used in the treatment of abscesses, boils and wounds. A dried powder of the plant is applied to cuts and wound to help a accelerate healing.

3.Botanical name: *Nelumbo nucifera*

Vernacular name: Kamal

Family name: Nelumbonaceae
Uses: Leaf ash together with coconut oil is used for curing foot cracks. One table spoonful of dry fruit powder is mixed with honey and taken as a tonic. Root and flower powder is taken with warm water daily for a month as blood purifier.

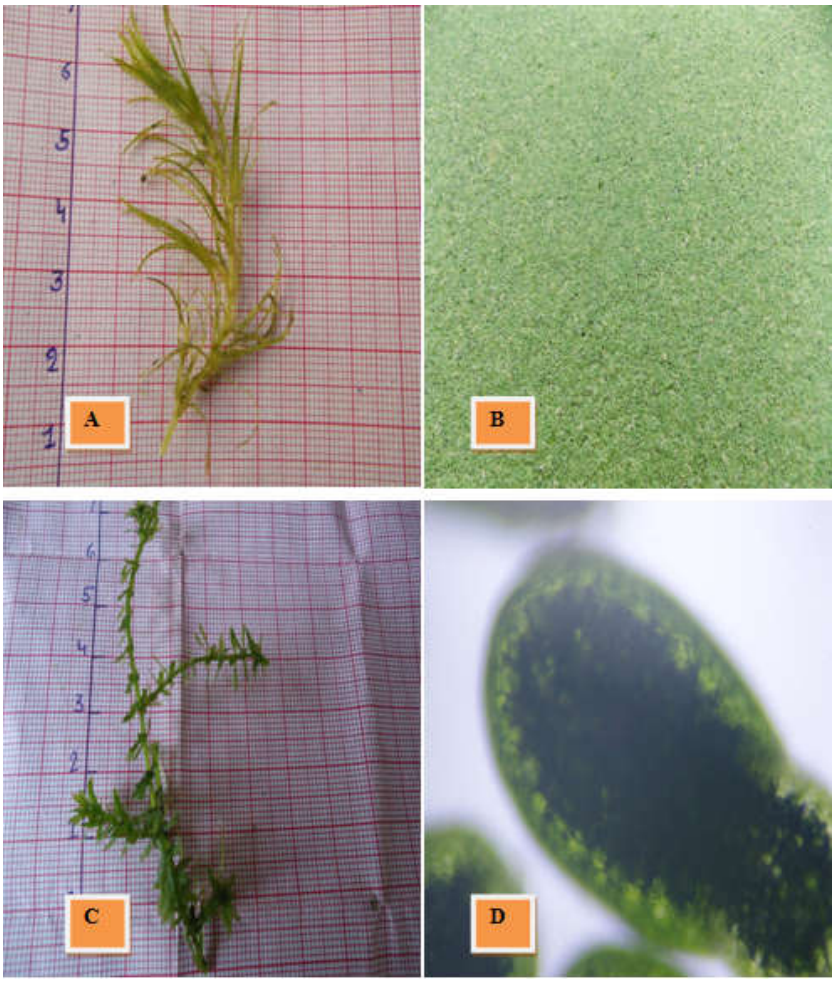

Fig. 2. [A] Ceratophyllum demersum [B] Lemna minor [C] Hydrilla verticillata [D] Wolffia (10 X)

4.Botanical name: Ipomoea aquatica

Vernacular name: Kolmni
Family name: Convovulaceae
Uses: Decoction of the aerial parts is taken orally for one month to cure piles and expel intestinal worms.

5.Botanical name: *Nymphaea nouchali*

Vernacular name: Poothali
Family name: Nymphaeaceae
Uses: Root powder is taken twice a day for a week to cure dysentery and diarrhoea. Also treat in digestion, antihepatotoxic, antidibetic.

6.Botanical name: *Typha angustata*

Vernacular name*:* Cattail
Family name: Typhaceae
Uses*:* Spikes are made into paste with red soil and applied to set right bone fractures. Leaf juice (25ml) is taken early in the morning for 2 days as a relief from fever.

7.Botanical name: *Nymphaea lotus*

Vernacular name: White lotus
Family name: Nymphaeaceae
Uses: Rhizome tender leaves and flower peduncles are used as vegetable. The powdered rhizome is given in dyspepsia, diarrhoea and piles. An infusion of rhizome and stem is considered emollient and diuretic. It is used for blennorhagia and disease of urinary tract.

8.Botanical name: *Lemna minor*

Vernacular name: Duckweed
Family name: Araceae
Uses: It is used in the treatment of colds, measles, oedema and difficulty in urination.

9.Botanical name: *Marsilea quadrifolia*

Vernacular name*:* Sushni
Family name: Marsileaceae
Uses: Used in treat of snakebite, diuretic, febrifuge, fever and leprosy. Petiole and leaves also used in hypertension and sleep disorder. It's juice is take in respiratory troubles like cough.

10.Botanical name: *Nymphoides indica*

Vernacular name: Panchuli
Family name: Menyanthaceae

Uses: Used as a substitute for chiretta, as a febrifuge and in jaundice.

11. ***Botanical name:*** Wolffia spp.

Vernacular name: Rootless duckweed
Family name: Araceae
Uses: Used as a protein rich fodder.

Conclusion

A pond may consist not only the plants but is maintaining a well balanced ecosystem also. They provide sufficient water for agricultural and irrigation purposes and also increases the ground water level. But unfortunately the domestic, many anthropogenic activities and sewage contamination reduces the water quality and disturb the aquatic ecosystem. Polluted water creates problems for all kind of life (Verma and Khan, 2015). So the ponds and pond plants should be conserved.

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