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Flora of Series Microspermae in Haroti Region, South-East Rajasthan

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ABSTRACT: In the present paper, an attempt has been made to record the vegetations of series Microspermae in Haroti region. Microspermae is the first series of monocotyledons in Bentham and Hooker's classification. The work is based on field visits and collection tours of area. Five species have been observed, which have been enumerated in this communication.

KEYWORDS: Epigynous, Flora, Haroti region, Microspermae, Monocotyledons

I. INTRODUCTION

Monocotyledons are herbs, more rarely shrubby stem without pith, vascular bundles scattered but no cambium, and secondary growth generally absent. Leaves are large and parallel veined. Perianth are generally trimerous, free or united. Embryo with one cotyledon, hypogeal, radicle forming tap root which is short lived and is replaced by adventitious roots.

Bentham and Hooker's starts monocots with the Microspermae and end with Glumaceae. While, Engler and Prantl starts monocots with the order Pandanales and end with Microspermae. The characteristics of series Microspermae are: (i) At least the inner series of the perianth petaloid. (ii) Ovary inferior, unilocular with 3 parietal placentae or rarely 3 locular, with axile placentation. (iii) Seeds minute, numerous, with endosperm.

Haroti plateau is situated at the edge of the Malwa plateau at 23°45' to 25°53' N latitude and 75°9' to 77°26' E longitude in the south eastern corner of Rajasthan. The Haroti plateau has dense floristic diversity suggests various plant species. The paper deals with flora of series Microspermae in Haroti region.

II. RELATED WORKS

Earlier studies regarding floristic and ecological work done by many researchers, notable some of them are Shetty and Pandey (1983), Jain and Vairale (2007), Sujana and Sivaperuman (2008), Hoenselaar, Verdcourt & Beentje (2010), Kumar (2012), Meena (2012), Jadhav (2016) and Sharma, 2021 and 2022. The present investigation creates the awareness about the plant wealth of the area.

III. METHODOLOGY

In the present study whole area especially different wetland and moist regions of the Haroti plateau have been visited. To record the flora of series Microspermae, area were visited during November 2020 to December 2022, mostly in rainy and winter season.

IV. EXPERIMENTAL RESULTS

Bentham and Hooker divided monocotyledons into seven series and thirty-four order. Series Microspermae divided into three families, namely:

1. Hydrocharidaceae
2. Burmanniaceae
3. Orchidaceae

The member of series Microspermae of Haroti region are recorded and communicated in present paper. The general characters of these families, along with systematic enumeration of species with their morphological characters, local name, flowering and fruiting time, locality and important ecological characters have been described.

1. Family – Hydrocharitaceae (The frog's bit family)

General characters of family Hydrocharitaceae are -Aquatic herbs, floating or submerged, leaves opposite or whorled. Flowers unisexual or bisexual, actinomorphic, epigynous, enclosed in spathe, perianth 3 to 6, stamens 3 to 12, carpels 2-15, ovary inferior, one celled, parietal placentation. Fruit berry and seeds ex albuminous.

They develop sometimes so luxuriantly as to choke streams and canals with their more or less string forms.

Plant species enumerated in Haroti region:

- (1). *Hydrilla verticillata* (L. f.) Royle.
- (2). *Nechamandra alternifolia* (Roxb. ex Wight) Thwaites.
- (3). *Ottelia alismoides* (L.) Pers.
- (4). *Vallisneria spiralis* L.

2. Family – Burmanniaceae

Genera and species are not found in area.

3. Family – Orchidaceae (The Orchis family)

General characters of Family Orchidaceae are - Perennial herbs, epiphytes or growing on ground. Flowers bisexual, zygomorphic, epigynous, perianth 6 in two whorls, stamens 1-2, carpels 3, inferior, unilocular, parietal placentation. Fruits capsule, seeds numerous and non-endospermic.

Mostly members of Orchidaceae are terrestrial, succulent, scapose herbs, many are epiphytic or saprophytic. This is the large family of the monocotyledons.

Single plant species enumerated in this region:

- (1). *Vanda tessellata* (Roxb.) Hook. ex G. Don

Systematic enumeration of species of Series Microspermae of area -

1. *Hydrilla verticillata* (L. f.) Royle.

Family: Hydrocharitaceae

A caulescent, submerged aquatic fresh water herb, slender, divided into nodes, stoloniferous, leaves small, verticillate, whorled, oblong-linear and densely aggregate. Flowers in spathe, minute, unisexual, dioecious, trimerous, male flowers enclosed in a mucronate spathe and pedicellate, female flowers enclosed in a tubular two lobed spathe and sessile. Fruits subterete, dehiscent by decay of pericarp, seeds ellipsoid and numerous.

A stoloniferous fresh water tank herb. It is very frequent submerged fresh water hydrophytes commonly found in stagnant and slow running water bodies.

Fls. and Frs: September to March.

Important hydrophytic characters are plants remain rooted in the soil of the pond, roots are fibrous and ill developed. The stem is very long, thin and weak, whorly arranged submerged small, thin, green leaves, 3-4 verticillate leaves arranged on nodes of stems.

2. *Nechamandra alternifolia* (Roxb. ex Wight) Thwaites.

Family: Hydrocharitaceae

A submerged aquatic herb, grows quite fast, leaves linear, lanceolate, narrow. Flowers in spathe, unisexual, fruit utricle ovoid.

Common in fresh water habitats.

Fls. and Frs: August to April.

It is a noxious aquatic weed, forming red mass on water surface. It may be free floating or attached, occurs in slow running fresh water.

Solo species of *Nechamandra alternifolia* (Roxb. ex Wight) Thwaites is a monotypic genus of Hydrocharitaceae family.

3. *Ottelia alismoides* (L.) Pers.

Family: Hydrocharitaceae

A fresh water, rooted herb, leaves arising from root, ovate or circular, reniform and thin. Flowers in spathe, white, with yellow spots, fruits oblong and covered in spathe.

Common aquatic submerged or emergent annual weed with white flowers and ovoid fruits, found in shallow running or stagnant water.

Fls. and Frs: February to November.

4. *Vallisneria spiralis* L.

Family: Hydrocharitaceae

Common name: Jal bel, Tape grass

A common submerged aquatic, straight, perennial herb, stoloniferous, vertical stems bear a tuft of adventitious fibrous roots and a crowded cluster of long, linear, narrow, grass like leaves serrulate at the tip, margins entire to toothed. Flowers unisexual, dioecious, minute, male plant bears numerous small staminate flowers enclosed in a shortly stalked spathe under water, two stamens and tripartite perianth, female flowers solitary, borne on long slender stalks, in coiled scape, pollinated by water, fruits linear.

Common submerged weeds found in slow running or stagnant water.

Fls. and Frs: February to November.

It is stoloniferous, dioecious aquatic weed with ribbon-shaped leaves. It grows in the mud at the bottom of fresh water.

Important hydrophytic characters are plant body is weak and slender, ill developed, fibrous roots, stems rhizomatous, tuberous or corm like, branches stolon tuberous type, vegetatively propagates. Leaves large, narrow radical and thin, ribbon-shaped, flat and in groups, flowers have long peduncle.

5. *Vanda tessellata* (Roxb.) Hook. ex G. Don



Family: Orchidaceae

Common name: Banda, Rasana

An epiphytic perennial herb on trunks of decaying trees, stems monopodial, leafy, leaves linear, recurved, apices irregularly dentate. Flowers in racemes, large, sepals tessellate, fruit capsules winged with minute seeds.

A common epiphyte orchid, often growing on the branches of *Mangifera indica* L. trees in forests.

Fls. and Frs: September to May.

V. CONCLUSION

Bentham and Hooker divided monocotyledons into seven series and thirty-four order. In this classification monocots are kept after dicots. Microspermae is the first series of this classification. They placed most advanced family Orchidaceae at the beginning in the series Microspermae. Engler and Prantl kept monocots before the dicots. They start Monocots with the order Pandanales and end with Microspermae. Family Orchidaceae is regarded as the most advanced, this family is placed at the end of monocots under the order Microspermae. Thus, systematic position of Microspermae is interesting and controversial. General account of Microspermae of Haroti region of south-east Rajasthan have been undertaken in this study.

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