

Botany, Utilization, Practices and Ecological Status of Salvadoraceae in Arid Zone of Rajasthan

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ABSTRACT

The hot arid western region of India occurs in the western part of Rajasthan state, which contains the dominantly sandy Thar desert. The term “arid” normally means a region of the earth’s surface where rainfall is nil or inadequate, with the result the vegetation is non-existent or sparse, agriculture difficult or impossible and human living conditions precarious. Salvadoraceae is a family in the plant order Brassicales, consisting of three genera with a total of 11 known species in the world. They are often found in hot, dry areas. The major area of western Rajasthan are either barren or are represented with sparse vegetation. The present paper deals with the status, practices, botanical description and significances of the Salvadoraceae family with references to the Rajasthan state.

Keywords: Evergreen, *Salvadora oleoides* Decne., *Salvadora persica* L., Thar desert, Tropical thorn forest.

INTRODUCTION

The hot Indian arid zone lies in the northwest part of the country. The arid regions of Rajasthan, Gujarat, Punjab, and Haryana together constitute the Great Indian Desert, better known as the Thar Desert. The Thar, forms the principal hot arid zone of the country. The vegetation is dominantly dry, tropical thorn forest consisting mainly of *Prosopis cineraria*, *Tecomella undulata*, *Salvadora oleoides*, *Salvadora persica*, *Capparis decidua*, *Acacia senegal*, *Acacia leucophloea*, *Tamarix aphylla*, *Tamarix*

dioica, *Ziziphus nummularia*, *Euphoria caducifolia* etc.

Salvadoraceae is a family in the plant order Brassicales, consisting of three genera with a total of 11 known species in the world. They occurs in Africa, Southeast Asia, Java and Malesia. They are often found in hot, dry areas. Salvadoraceae was previously placed in order Celastrales, but is now placed in Brassicales.

The member of Salvadoraceae is under threat, largely because of their slow growth rate.

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Salvadoraceae family consisting three genera namely, *Azima*, *Dobera* and *Salvadora*. Only *Salvadora* genera occur in Rajasthan. Two species of *Salvadora*, found in Rajasthan i. e. *Salvadora oleoides* Decne. and *Salvadora persica* L. *Salvadora oleoides* Decne. is an evergreen shrub or tree with a dense crown of numerous drooping branches; it can grow 6 - 9 metres tall. The short bole is quite often twisted or bent. *Salvadora persica* L. is an evergreen shrub, with a short trunk, smooth green leaves and white bark. Meswak, a chewing stick is prepared from its stings and roots. Botany, utilization, practices and ecological status of Salvadoraceae in arid areas of Rajasthan is being communicated in this paper.

MATERIALS AND METHODS

The hot arid western region of India occurs in the western part of Rajasthan state, which contains the dominantly sandy Thar desert. The climate of the region being arid, the erratic behaviour of the meagre rainfall, extreme temperatures and high summer winds are the perpetual climatic problems to reckon with, especially for agriculture. Drought is and will remain a major determinant of agriculture in the region. In the present observation, systematic account and significance of Salvadoraceae family in xeric environment particularly in Rajasthan state are enumerated. Ecological and floristic work was studying the earlier work done by King, 1879, Duthie, 1903-1929, Champion and Seth, 1968, Bhandari, 1978, Sharma and Tiagi, 1979, Singh and Pandey, 1982, Joshi, 1989, Joshi and Awasthi, 1991, Sharma, 1999, Kumar and Kaseva, 2009, Ghelot, 2013, Vashistha and Kaur Mandeep 2013 and Sharma 2020. Present observation is based on literature study and field visit of the area. The member of Salvadoraceae family supports a relatively small number of plant species those capable of tolerating a high degree of temperature and salinity.

RESULTS AND DISCUSSION

Salvadora oleoides Decne. and *Salvadora persica* L. possess socio-economic impact on local people of Western Rajasthan area.

Present observation form base-line information about the Family Salvadoraceae. Systematic enumeration, traditional practices, present ecological status and significance of member of the family of area are described in this communication.

1. *Salvadora oleoides* Decne.

Common name: Meetha jal, Pilu

Systematic enumeration: *Salvadora oleoides* Decne. is an evergreen tree or large shrub, 3-5 high, attaining 7-9 m height under favourable conditions; trunk short, often twisted or bent, branches drooping, numerous, stiff, often swollen at forks; bark grey or whitish-grey. Leaves glaucous, entire, coriaceous and somewhat fleshy, linear-lanceolate, dark greenish-yellow when young, and grey when mature. Flowers in axillary, sessile, greenish-white, minute in paniced spikes, often clustered; bracts deciduous, calyx cup-shaped, in 4 rounded, obtuse lobes. Stamens exserted, epipetalous Fruit a drupe, globose, about 6 cm in diameter, usually yellow when ripe, dark brown or red when dry. Seeds one-seeded, greenish-yellow, about 3 mm in diameter.

Flowering and fruiting: February to June.

Utilization and practices: Its fruits are edible. Fruits are sweet, rich source of calcium and consumed by the local people of area. The pulp contains glucose, fructose and sucrose. The tree is often lopped for camel fodder. Fruits fed to cattle are said to increase milk production. Sheep and goats graze the tree. The tree is harvested from the wild for local use as a medicine and source of materials. It is an important source of fuel wood. Wood is light red or yellow, with irregular shape. It is used for building purposes and agricultural implements in area.

Leaves are used to relieve cough, and are given to horses as a purgative. Root bark is used as a vesicant. Fruits are used in the treatment of enlarged spleen, rheumatism and fever.

Ecological significance: *Salvadora oleoides* Decne. is highly salt tolerant. The tree is found as patchy distribution of vegetation. Forest patches in such important vegetation of desert area. *Salvadora oleoides* Decne. coppices fairly well. A dense, almost impenetrable

growth is formed by a parent stem surrounded by a ring of root suckers. It has potential for reclamation as it regenerates freely by root suckers.

It is suitable for growing in shelterbelts and as windbreaks in desert tracks. The tree contributes to the stability of fragile areas. *Salvadora oleoides* Decne. is a multipurpose tree species which grows in the arid zones of India. The species is of immense commercial value and now threatened due to overexploitation for wood and multipurpose uses. Natural recruitment in the species by means of seeds is very poor.

2. *Salvadora persica* L.

Common name: Khara jal, Pilu

Salvadora persica L. (Khara jal) is widely distributed in the arid regions of India and often on saline soils. It is a large, well-branched, and evergreen shrub or a tree resembling with *Salvadora oleoides* (Meetha jal) found in also the dry and arid regions of India. *Salvadora persica* L. has enormous reported activities. Its chewing sticks have been used for centuries for tooth cleaning. It has potential medicinal and research activities.

Systematic enumeration: Evergreen large shrubs or trees, Soft whitish wood, bark is of old stems rugose, branches are numerous, drooping, glabrous, terete, finely striate, shining, and almost white. Leaves are fleshy, glaucous, ovate – elliptic to lanceolate, often mucronate at the apex, the base is usually acute, less commonly rounded. Flowers are dull yellow in colour, pedicellate, in axillary and terminal compound lax panicles, numerous in the upper axils, bracts beneath the pedicels, ovate and very caducous. Calyx glabrous, cleft half-way down, lobes rounded. Corolla is very thin, 3 mm long, deeply cleft, persistent, oblong, obtuse, and much reflexed. Stamens exerted, owing to the corolla lobes being reflexed. Fruit drupe is 3 mm in diameter, globose, smooth and becomes red when ripe.

Flowering and fruiting: December to June.

Utilization and practices: A chewing stick Meswak is prepared from its stems and roots. However the commonly available Meswak in

markets is a root preparation. The traditional use of *Salvadora persica* L. as antimicrobial toothbrush stick for oral hygiene and to treat gum inflammation, is an old practice.

Ecological significance: Major areas of desert of Rajasthan are either barren or are represented with sparse vegetation. *Salvadora persica* L. is an salt large bush can grow in highly xeric and saline wasteland. It is widely distributed near salt lakes and salt basins in arid zones of Rajasthan.

CONCLUSION

Salvadora oleoides Decne and *Salvadora persica* L. are regionally multipurpose tree species which grows in arid zones of India vulnerable. The natural regeneration of *Salvadora* through seeds is very rare, due to low viability and poor germination. At present these species are under threat and has been recommended for ecological conservation. *Salvadora persica* L. is widely distributed in the saline area of arid regions. *Salvadora oleoides* Decne. is such an important source of fuel wood for the local inhabitants. It is sometimes grown as a shelterbelt and to protect the soil. The information would be of considerable help in utilization, traditional practices and conservation strategies of it's in the area.

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Conflict of Interest

The author declares no conflict of interest.

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