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Ethnomedicinal Uses of Plant *Barleria* of Family Acanthaceae

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Abstract

The paper enumerates the ethnomedicinal uses of *Barleria* plant species of family Acanthaceae used by local tribal people, bhopa (village priest), headman and informants of Dausa district of Rajasthan. Information on the medicinal uses gathered from the tribals together with their botanical identity, local name and mode of administration are presented.

Keywords: Ethnomedicine, Traditional, Dausa, Acanthaceae, Tribe, Meena, Rajasthan

Introduction

Though ethnobotany was almost unheard word in India in middle of last century yet it deals with study of traditional and indigenous knowledge about man-plant relationships which exist since birth of man on this earth. Traditional ethnomedicinal studies have in recent years received much attention due to their wide local acceptability and clues for new or lesser-known medicinal plants [1]. Ethnomedicine is an area of research that deals with medicines derived from plants, animals, minerals etc. used in the treatment of various diseases and ailments [2]. Ethnomedicine includes indigenous beliefs, concepts, knowledge and practices among the ethnic group, folk people or race for preventing, lessening or curing disease or pain. Out of 20,000 medicinal plants of the world, India contributes about 15 per cent (3000 – 3500) medicinal plants. About 90 per cent of these are found growing wild in different climatic regions of the country. Out of 3000 medicinal plants occurring in India, about 200 species are used in bulk quantities as articles of commerce [3]. Significant ethnobotanical/ethnomedicinal research has been done by several workers in India and in Rajasthan [4-18].

Acanthaceae is a large cosmopolitan family of *ca.* 250 genera and 2500 species distributed mostly in the tropical and subtropical areas of the world. The plants are Paleotropical, Neotropical cape and Australian. They are centered on Indo-Malaysia, Asia, Africa, Brazil and Central America. Medicinally very important family includes about 68 genera and 250-300 species are found throughout India while in Rajasthan this family is represented by 30 genera and 81 species. The family has a large number of ornamental and medicinal plants. They are mostly herb shrub and climbers. A large number of crude drugs used in Ayurvedic system employ plants of family Acanthaceae.

The district Dausa is situated in the north eastern region of Rajasthan, a region widely known as Dhundar and lies between 26°23' to 27°15' N latitude and 76°06' to 77°02' E longitude. The total area of the district is 3414.28 km² which is 0.99% of the area of state and surrounded by 06 districts viz., Jaipur, Tonk, Alwar, Bharatpur, Karauli and Swaimadhopur. The total population of district is 16,34,409 out of which 2,01,793 urban and 14,32,616 rural populations as per census 2011 [19]. The soil of district is yellowish to dark brown with fine texture generally suitable for all types of crops. It is characterized by dry climate with the hot season. The maximum temperature is 47°C and minimum 4°C. Total annual rainfall varies from 450mm to 670mm. Agriculture practices mostly depends on monsoon rainfall. The district dominated by Meena tribe and other backward caste Gujar and Mali.

Methodology

Plant material collected from surveyed area. Plant specimens were identified consulting various flora, taxonomic books, ethnobotany and medicinal plants books [20-37].

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Collected plants were deposited in Herbarium, Department of Botany, University of Rajasthan, Jaipur and assigned RUBL, numbers. Detailed ethnomedicinal investigation was conducted on medicinally important two species of *Barleria* of Acanthaceae found in Dausa district. The plants are viz., *Barleria prionitis* Linn, and *Barleria cristata* Linn (Syn. *B. ciliata* Roxb., *B. dichotoma* Roxb., *B. laciniata* Wall.).

1. *Barleria prionitis* L. subsp. *prionitis* var. *prionitis* Local Name: Vajradanti.

Distribution

Barleria prionitis is native of tropical East Africa and Asia. It is widely cultivated as an ornamental and has escaped in many tropical countries including Hawaii and Puerto Rico. It occurs throughout the hotter parts of India and Ceylon. It is distributed throughout Rajasthan in shady, humid and rocky places.

Morphology

A common undershrub occasionally found wild generally cultivated as a hedge plant or for its ornamental flowers. A shrub 0.6-1.5m high, much branched, usually prickly; bark whitish; stems and branches terete or obsoletely tetragonous, glabrous. Leaves 9-18 by 2.5-5.7 cm elliptic, acuminate, bristle-tipped, entire, lineolate, glabrous above, glabrous or more or less pubescent (especially, the young leaves) beneath, base tapering into the petiole; main nerves about 5 pairs; petioles 0.2 cm long, becoming shorter upwards, usually with 3 (sometimes 2 or 4) divaricate acicular spines in the axils. Flowers sessile, often solitary in the lower axils, bracts foliaceous, 16 by 4-5 mm oblong or oblong-lanceolate, acute, bristle-tipped, nearly glabrous, bracteoles-1.3 cm long, narrowly linear-subulate (almost spinous), bristle-tipped. Calyx divided almost to the base; one of the two outer sepals rather more than 1.3 cm. long, the opposite sepal rather less than 1.3 cm long, 3-4 mm broad, both oblong-lanceolate, the 2 inner sepals 1.5 mm wide and as long as the shorter of the outer ones, linear-lanceolate, mucronate.

Corolla 3.2 – 4.5cm long, yellow, slightly pubescent outside, glabrous inside, somewhat 2-lipped; upper lip 2 cm long or more deeply 4-lobed, the lobes oblong- obovate, rounded; lower lip oblong-obovate, rounded, entire; tube 1.9-2.2 cm long stamens 2 fertile and 2 staminodes. Filaments of the fertile stamens exerted beyond the corolla-tube, those of the staminodes very short. Capsules 2-2.5cm long, ovoid, with a long tapering solid beak, 2- seeded. Seeds 8 mm diam, compressed, clothed with silky appressed hairs. In the deciduous tropical forest zone of central India, these shrubs flower from September to December and fruit from January to April.

Ethnobotanical uses

The vajradanti plant is a boon for teeth and gum problems and hence the hindi name meaning 'Strong teeth'. Leaf extract gives immediate relief in toothache when massaged in gums. It gives strength to gums. The oil is claimed to induce hair growth in bald person if used regularly Leaf paste regress the swelling of gums when massage on them. It is also useful in skin diseases. Tribal people chew the leaves to relieve bodyache, toothache and to cure bleeding. Root decoction is taken three tea spoonsful twice daily for about a week to cure bronchitis.

Leaf juice is taken along with cumin seeds till cure spermatorrhoea. Leaf juice with honey is used as antihelmintic. Traditionally leaves ash of vajradanti is mixed with butter and used in leucoderma.

2. *Barleria cristata* L. Local Name: Janti.

Syn.: *Barleria ciliata* Roxb. *B. dichotoma* Roxb. and *B. laciniata* Wall.

Distribution

It is distributed in North West Himalaya, Sikkim, Khasia, Burma, central India, Nilghiris ascending up to 2000m, also in the plains of subtropical India. Commonly distributed in gardens of India, Malaya, China and Ceylon. Common along the streams in the valleys and on low hills throughout Rajasthan.

Morphology

Perennial, erect herbs or under shrubs, 0.75-1.25m high. Leaves up to 16x7 cm elliptic or elliptic-oblong, acute-acuminate, base tapering, entire and ciliate-margined. Flowers in lax cymes. Bracteoles membranous, acute, 1-nerved. Outer 2 calyx-lobes membranous, pubescent, whitish, margins bristle-tipped; inner one narrower. Corolla infundibuliforms, pubescent outside, purple blue, or white. Capsules 1.25 cm long, oblong-ovoid, glabrous, 4-seeded. Seeds 4mm across, suborbicular, compressed, silky-hairy, brown.

Ethnobotanical uses

The decoction of root is very useful in anaemia. The juice of leaves is useful in cough and inflammations. The juice of leaf is used with honey to cure cough and cold by tribal. Paste of leaves is applied (3 times daily) on cut, wounds and gums to stop bleeding. 4-5g of leaves are dried and powdered and taken once a day till cure of asthma.

Results and Discussion

During the present investigation authors have reported medicinally important two species of genus *Barleria* of family Acanthaceae used by tribals in the district in their day to day life. The plants enumerated in the text are wild and they have proved handy and easily available remedial material which quick result. It has been observed that the folklore and tribal herbalist still depend upon wild plants around them for meeting their needs and posses good knowledge of the medicinal uses of such plants. Due to constant association with the forest environment, they have evolved knowledge by trial and error and have developed their own way of diagnosis and treatment of different ailments. These plants are being used to treat various ailments such as cough, skin diseases, anaemia, toothache, bodyache, antihelmintic and inflammation. Now a day, population is expanding in villages, younger generations tend to discard their traditional life style therefore, much of this wealth of knowledge is being lost as the traditional culture is disappearing. Hence, documentation of traditional practices of herbal medicine will be coherence in future. With the help of earlier studies and the present day research data its exploration shows that these ethnobotanical studies can be greatly beneficial to human race for treating disease with cheap and best non side effect solutions.

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