



## Medico-Ethnobotany of Plants Surveyed and Studied in District Bijnor with Special Emphasis on their Medicinal, Religious and Ornamental Significance

### KEYWORDS

Ethnobotany, medicinal plants, District Bijnor, traditional aboriginal knowledge

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### ABSTRACT

The Indian scriptures such as Rigveda and Atharvveda have given and identified several plants which can be used for curing diseases of humans as well as the animals. Ethnobotanical studies are making a valuable contribution to the cataloguing of biological diversity and hence to the conservation of endangered ecosystems and the human societies which depend upon them. The plant-based traditional medical systems continue to provide the primary health care to more than three-quarters of the world's populace. Present study gives an overview of the survey and study of the 22 medicinal plants of district Bijnor (U.P.) with special reference to their traditional medicinal uses, religious and ornamental significance.

### Introduction

Ethnobotany deals with the relationship of the people of aboriginal societies and the plants of their interest, particularly the medicinal ones. This discipline became established as a genuine academic and research activity in the second half of the twentieth century. The term ethnobotany was first coined by Harshberger in 1895 for the study of plants used by primitive and aboriginal people (Trivedi, 2002). The broad indigenous knowledge of the aboriginal people based on the behaviour of complex ecology and utilization system in the localities has accumulated over a sufficient span, through a long series of observations (Sahu, 2003).

In our earlier study, purified phytocystatin from *Catharanthus roseus* has been reported to possess strong antibacterial activity in the purified inhibitors CRC-I and II against *E. coli* and *S. aureus* [Sharma *et al.* 2011]. The present research work is concerned with the ways of human perception and use of plants, and then influence on the environment. Efforts shall also be made to adopt an interdisciplinary and utilitarian approach by probing into the ethos of local population and their understanding of the immediate environment with a bearing on the relationship to plants coupled with its regulation on their day to day usages *vis-a-vis* interaction. The Bhotia, Bengalis, and some Bhotias tribal groups are inhabitants living in Haldaur, Nehtaur, Chandpur, Noorpur, Dhampur, and Bijnor. The present work focusses on the ethnobotanical study and survey of district Bijnor with special focus on the traditional medicinal plants and their religious and ornamental significance, the plant parts used and the dosage and route of administration. The study, documents comprehensive information about the plants given by traditional healers, vaidyas and elderly people interviewed in district Bijnor.

### Materials and Methods

The work was undertaken through field study carried out throughout the seasons of August 2010 to May 2014 in various areas of Bijnor. To fulfill this purpose, ethnobotanical survey of areas around district Bijnor (western U.P.) were selected to collect the information through traditional medicinal plant healers and practitioners. Attempt was also made to provide the most acceptable scientific, common and local names, FL (Fidelity level) values of various plants of medicinal, traditional and religious significance found in the study area. First hand information about the folk medicinal uses of plants was collected from the traditional healers, Vaidyas,

Hakims, Jarrahs, Tribals and elderly rural people. The age of the respondents ranges between 45 to 80 years and the number of male respondents was higher (80%) as compared to the female respondents (20%). Few of the informants were reluctant to reveal any information but many of them consented for collection from the forest/agricultural lands and for the interviews. The village cultivators, also revealed many plants used for daily ailments and also agreed for field trips to identify the plant species.

The specimens have been identified using relevant floras and standard literature (Hooker, 1989, Kanjilal *et al.* 1982 and Gaur, 1999). The respondents were selected randomly and prior informed consent was obtained from each respondent to get traditional knowledge of the plants.

### Results

Documentation and conservation of the medicinal plants has become big challenge to scientific communities throughout the world. The forests/agricultural regions of western Uttar Pradesh is a rich source of medicinal plants due to its geographical and climatic conditions. The present study provides an account of 22 medicinal plants belonging to 22 species. Out of which 18 plants belong to different families while rest of them belong to the same family. Ethnobotanical survey and study of the medicinal plants revealed in the present study are being utilized to treat and cure 57 diseases/deficiencies and ailments, which includes: "Gastric disorders, piles, oedema, jaundice, obesity, paediatric disorders, urinary complaints, gynaecological disorders, rotavirus, giardia, kidney pain, appendicitis, placental disorders, migraine, inflammation and allergy caused by honey-bee bite, skin infections, asthma, diabetes, diarrhoea, epilepsy, dengue, enlarged spleen, urological disorders, regulation of blood pressure, bone strengthening, protein deficiency, cough and cold, viral conjunctivitis of eyes and eye inflammation, improper bowel movements, bronchitis, hypertension, removal of gall bladder and kidney stones, to treat boils, corns and calluses on the feet, burn wound healing, swelling and joint pain, hair line bone dislocation, appetite stimulant, mouth ulcers, liver related ailments, diuretic, anti pyretic, hypercholesterolemia, strengthening hair follicles, skin moisturiser and softening, rheumatism, gout, tranquiliser, depression, malnutrition, Vitamin C, B, K, manganese and essential amino acid deficiency, abortions, induction of labor and contraceptive, insect repellent, chicken-pox, eczema, malaria and apopto-

sis". Table-1 presents comprehensive overview of the medicinal plants found in district Bijnor.

Most of the preparations are orally administered either as extract, juice, chutney, syrup powder or applied in the form of paste, dust/powder, decoction etc. The plant parts used include root, trunk, leaves, flowers, ripened and unripened fruit and seeds. There is enough scope of the amalgamation of these drug in the main stream of prenatal medicine suggested today after the tribal drug are subjected to the phytochemical and biological screening, together with clinical trials. The medicinal plants that are widely used by the local people have higher FL values than those are less popular. On the other hand, medicinal plants that can be utilized to treat single ailment have 100% fidelity level in comparison to those medicinal plants that are being used as a remedy for more than one ailment. In our study, we conclude that extract of *Aloe vera*, *Curcuma longa*, *Catharanthus roseus* and *Piper nigrum* if taken in combination reduces blood glucose levels and lipid profile to a significant level, and thus have 100% fidelity level. Otherwise, rest of the medicinal plants discussed in the present study are being utilized to treat multiple diseases.

### Discussion

This study has documented the variety of plants and their uses by these people. Interviews conducted at numerous households in the regions of Nehtaur, Mandavar, Chandpur, Noorpur, Dhampur, Afzalgarh, Keeratpur and other adjoining villages in district Bijnor give us an idea on local dependence of villagers and healers to forest/agricultural land resources as a means of sustenance. During our numerous interviews and interactions with healers/village dwellers, we noticed a significant information documented in this study.

growing reluctance of future generations to learn and preserve ethnobotanical knowledge, especially in the regions like Noorpur, Dhampur and Nejeebabad which is slowly being exposed to modernization. Therefore, studies like ours are valuable in the documentation and preservation of local plant knowledge. Considering the current rate of deforestation, population exploitation with the concurrent loss of biodiversity, there is a need of accurate documentation of the knowledge and experience of the traditional herbalists in district Bijnor as well as in other districts of western UP.

The need of the hour is to do strong networking with potential collaborators at national and international level and these collaborators may include expert academicians, botanists, ethnobotanists, scientists and researchers in both private and government organizations as well as strong international funding agencies with a sincere approach which can contribute in conserving the existing ethnobotanical resources, extinct plant species with traditional and medicinal significance and medicinal plants of western Uttar Pradesh (UP) which will help us in taking a step ahead in taking out the conserved ethnobotanical data out of Research and development labs and will further help in promoting the Indian ethnobotanical knowledge at national and international level.

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**Table 1: Overview of "Medico-ethnobotany" of medicinal plants found in district Bijnor (U.P.) with their religious/ornamental significance**

S. No.	Botanical name	Family	Vernacular name	Flowering-fruiting season	Traditional Medicinal Significance/Uses	Religious /Ornamental significance
1.	<i>Catharanthus roseus</i> . (Linn.)	Apocyanaceae	Sadabahar	April- September	Leukemia/Malaria and Diabetes: 20gms of root and shoot extract is given in the form of paste, (2g/serving). Even 5-10ml of extract in water is prescribed once in a day	Pink and white flowers are beautiful and the plant is grown in gardens for beautification.
2.	<i>Bryophyllum pinatum</i> (Linn.)	Crassulaceae	Pattharchat	April-July	Kidney and Gall stones: get dissolved in 15-20 days, 2-3 leaves chewed empty stomach, paste applied to heal boils and calluses, dislocated bones and joint pain.	None
3.	<i>Argemone maxima</i> (Linn.)	Papaveraceae	PeeliKatheli	May-July	Infusion helps expel torn placenta, used as sedative, to treat dengue and constipation	None
4.	<i>Calotropis procera</i> (Linn.)	Asclepiadaceae	Akh/Mudar	May-July	None	Flowers and leaves are offered during Shivratri, and are considered to be auspicious, keeps away bad spirits
5.	<i>Nerium oleander</i> (Linn.)	Apocynaceae	Lalkaner	April-June	None	Pink and red flowers are used to decorate lawns and gardens
6.	<i>Pterocarpus santalinus</i> (Linn.)	Fabaceae	Lalchandan	September-November	Alleviates Skin allergies: Bark is crushed and paste is applied on skin	Sacred and used during ritual, ceremonies and worship

7.	<i>Solanum nigrum</i> (Linn.)	Solanaceae	Makoi	April-June	Gastric, Respiratory and hepatic problems: Berries chewed to cure diseases	None
8.	<i>Ficus religiosa</i> (Linn.)	Moraceae	Peepal	May-September	Cures gastric respiratory problems, controls Leaf extract 2-3ml is given to cure hypertension	Astrologically significant, represents Pushya, Sacred tree and is worshipped by Hindus
9.	<i>Cannabis sativa</i> (Linn.)	Cannabaceae	Bhaang	April-May	Rheumatoid arthritis and Piles: soup relieves pain and depression, used to cure piles and as a tranquiliser	Used during Lord Shivas worship by devotees
10.	<i>Acyranthes aspera</i> (Linn.)	Amaranthaceae	Latjeera	April-June	Obstetrics and gynaecological problems: Boiled leaf extract is used for abortions and induction of labor	None
11.	<i>Ziziphus mauritiana</i> (Linn.)	Rhamnaceae	Ber	December-February	Alleviate gout and rheumatism: Juice of the root bark (4-5ml), twice/day is given. The root decoction heals wounds and reduces flatulence.	Fruits offered during Shivratri worship to please Lord Shiva for well being
12.	<i>Aloe-vera</i> (Linn.)	Xanthorrhoeaceae	Gwar-patha	March-April	Used during inflammation, to reduce bloodsugar levels and cure cancer as extract and juice	Used to make cosmetics and decorate lawns and gardens
13.	<i>Phyllanthus emblica</i> (Linn.)	Phyllanthaceae	Amla	November-February	Fruit and boiled leaf extract cures osteoporosis, arthritis, renal diseases and pancreatitis	Sacred tree: worshipped during "Amalaka Ekadashi" and "Dwadashi"
14.	<i>Ficus benghalensis</i> (Linn.)	Moraceae	Bargad	May-August	None	Belief is that since bargad is resting place for Lord Krishna symbolizes power and unity, worshipping bargad brings prosperity and peace in the family.
15.	<i>Ocimum tenuiflorum</i> (Linn.)	Lamiaceae	Tulsi	April-June	Insect repellent to store grains, to cure sore throat, cold and cough	Used during worship of Lord Vishnu and Lord Krishna
16.	<i>Curcuma longa</i> (Linn.)	Zingiberaceae	Haldi	October-December	Diabetes and blood clotting: Rhizome is cooked along with other leafy vegetables in required amounts (10-20g/serving), reduces blood sugar and also helps to alleviate certain skin allergies.	Used during rituals, worship and marriage ceremonies
17.	<i>Artocarpus heterophyllus</i> (Linn.)	Moraceae	Kathal	March-June	Alleviates Potassium, calcium and iron deficiency: 100gm of ripened fruit/once in 2 days also strengthens bones	Wood is used to make flutes and furniture products in few regions
18.	<i>Morus nigra</i> (Linn.)	Moraceae	Shehtoot	March-May	Fruits are eaten to treat epilepsy and diarrhoea and to stimulate immune system	None
19.	<i>Ricinus communis</i> (Linn.)	Euphorbiaceae	Arandi	April-August	Oil is applied to strengthen bones and relieve joint pain, has strong antioxidant activity	None
20.	<i>Aegle marmelos</i> (Linn.)	Rutaceae	Bel-patthar	April-June	Combating Giardia and Rotavirus (diarrhoeal diseases) in infants: Unripe Bael fruit given in the form of syrup (5-10ml/ twice a day) is effective.	Sacred tree and is used in worship of Lord Shiva.
21.	<i>Moringa oleifera</i> (Linn.)	Moringaceae	Sahjan	April-June	Leaves and beans cooked with leafy vegetables provide rich source of essential amino acids and vitamins	None

22.	<i>Ficus racemosa</i> (Linn.)	Moraceae	Goolar	Mid February-July	Bark decoction and paste is applied to cure honey-bee and insect bite, paste cures skin allergies	Ripened fruit is offered to monkeys to please Lord Hanuman
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