

Ethnomedicinal weed species of Auraiya District, Uttar Pradesh, India

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ABSTRACT

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The present study deals with the medicinal potential of 37 weed species belonging to 33 genera and 21 families. Ethnobotanical survey was carried out in Auraiya District, Uttar Pradesh during 2011-2014 for identification and documentation of medicinal weeds and for collection of information on these plants from the local peoples. The villagers use large number of medicinal weed species for treatment of different diseases. In addition, direct survey was conducted to document local conservation status of medicinally important weeds. The data presented here include their botanical name with authority followed by family name, vernacular name, part(s) used, availability period and medicinal uses. This work would be beneficial for the enrichment of Traditional Knowledge Digital Library (TKDL) project at district level.

Key-words: Ethnobotanical survey, medicinal plants, nuisances, traditional medicinal uses, Auraiya District, Uttar Pradesh, India.

INTRODUCTION

During last few decades, a large amount of research work on ethnobotany has been published from various parts of India. However, Auraiya District, Uttar Pradesh has not been given enough attention as far as ethnobotanical studies are concerned. Hence, to fill the gap the present investigation has been undertaken.

According to WHO (2002), 80% population of the world rely on the traditional medicines for their primary health care needs (Singh et al. 2007). These medicines have fewer side effects and can be procured

easily from the nature. The people have, by trial and error, developed their own traditional ways of diagnosis, treatment of disease and fulfil their basic requirements. The term weed is used in a variety of sense, generally centred on a plant that is not desired within a certain context. Despite the negative impact of weeds as they reduce crop yield by competing for water, light, soil nutrients, space, CO₂, reducing crop quality, providing shelter for insects and serving as alternate host for crop diseases, etc., some plants usually considered as weed may actually provide some benefits, e.g. stabilising and

adding organic matter to the soil, provide habitat and feed for wildlife, providing nectar for bees, offering aesthetic qualities, serving as a genetic reservoir for improved crops, providing products for human consumption and medicinal uses. Consumption of agricultural weeds is a world-wide phenomenon as some of the plants are characterised by highly nutritional value and medicinal properties (Rapoport et al. 1995, Charles & Kokti Venkata 2012, Cruz-Garcia & Price 2012). Weeds have been found to represent a very important component of indigenous pharmacopoeias. The consumption of weedy greens has often been perceived to have a medicinal character (Chaitanya et al. 2010, Govindaraj et al. 2011). In ancient Indian literature, all plants were not considered as weeds and it is clearly mentioned that every plant on this earth is useful for human beings and animals. It is ignorance of human beings as they consider some plants are useful and others as unwanted. Auraiya District is located in the south-western part of Uttar Pradesh, India.

The Auraiya District (26°32' -27°01' north latitudes, 78°46' -79°45' east longitudes) lies in Indo-Gangetic plains at an average elevation of 133 m above the mean sea level. This district is drained by river Yamuna and its tributaries namely Chambal, Sindh, Kwari, Pahuj and Sengar. There is confluence of five rivers at 'Panchnad' that makes it a place of pilgrimage. Climate of the area is humid sub-tropical, temperature ranges from 3°C to 46°C and annual rainfall is about 800 mm. About 85% of the annual rainfall is received from south-west monsoon during July to September. The geographical area of the district is 2054 km² and population, according to census of 2011, is about 1.37 million.

MATERIAL AND METHODS

The present ethnobotanical survey was done during 2011-2014 in different villages of Auraiya, viz. Amiliya, Muradganj, Atsu, Surainda, Anantram, Phaphund, Kakor, Bhikepur and Dibiyapur. Old experience and traditional medicine experts (Vaidya) were consulted to know about the use of various weed plants growing in their localities. Field trips were made to the sites where the participants collected the useful weeds.

Vouched specimens of plants identified as medicinally important weeds were collected during the field trips when encountered for the first time and again when they were flowering or fruiting, for easy identification. The collected specimens identified through critical studies, consultation of herbaria and literatures (Roxburgh 1832, Bentham & Hooker 1862-1883, Hooker 1872-1897, Duthie 1903-1929, Bailey 1949, Gamble 1967, Mabberley 2008). All the voucher specimens are deposited in the herbarium of Botany Department, Janta Mahavidyalaya, Ajitmal, Auraiya. The documented ethnobotanical information of this area also compared with information recorded from other parts of the state as well as country (Maheshwari et al. 1981, 1986, Dixit & Pandey 1984, Jain 1991, Khanna 2002, Kumar et al. 2003, Maliya 2004, 2007, Nigam & Kumar 2005, Singh & Singh 2008, Singh et al. 2010, Tiwari et al. 2012, Kumar et al. 2012, Lakara et al. 2012, Yadav et al. 2014). The information about the folk medicinal uses, vernacular names, plants parts used were collected during interaction with rural peoples, local healers, farmers, vaidyas, etc.

RESULTS AND DISCUSSION

The study reveals 37 common weed species, from Rabi and Kharif seasons, in Auraiya District are of medicinal value (Table 1). These species are assignable to 33 genera and 21 families. The most common families are Asteraceae (5 species), Euphorbiaceae and Fabaceae (4 species each), Amaranthaceae (3 species), Lamiaceae, Solanaceae, Cyperaceae and Poaceae (2 species each). Rest of the families, viz. Apiaceae, Commelinaceae, Convolvulaceae, Cucurbitaceae, Chenopodiaceae, Fumariaceae, Liliaceae, Nyctaginaceae, Oxalidaceae, Primulaceae, Papaveraceae, Portulacaceae and Polygonaceae, are represented by single species each. Weeds are generally considered as nuisances in the field and enemies to the farmers, as there is misconception that they are useless. Even though many of these weeds have high ethnopharmacological importance, they are being destroyed and there is a lack of scientific knowledge and guidance. The information recorded for ailments such as bronchitis, asthma, pneumonia, scabies, snake

Table 1. Medicinal weeds of Auraiya District, Uttar Pradesh, India.

S. No.	Botanical Name	Family	Vernacular Name	Parts used	Availability	Folk medicinal uses
1.	<i>Acalypha indica</i> Linn.	Euphorbiaceae	Kokali	Stem, root and leaf	July-December	Dried powder along with honey is given in chronic bronchitis, pneumonia and asthma, leaf paste is applied to cure scabies.
2.	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Chirchita	Whole plant	July-March	Decoction of plant is given for treatment of dropsy and piles; juice of fresh leaves is given to cure snake bite and stem is chewed in pyorrhoea.
3.	<i>Ageratum conyzoides</i> Linn.	Asteraceae	Gandhela	Leaves	August-March	Paste of leaves is applied to sores and cuts.
4.	<i>Amaranthus spinosus</i> Linn.	Amaranthaceae	Katili chaulai	Roots & Leaves	August-December	Decoction of leaves and roots is given to children as laxative.
5.	<i>Amaranthus viridis</i> Linn.	Amaranthaceae	Jangali chaulai	Leaves	August-December	Leaf paste used as antidote in scorpion sting.
6.	<i>Anagalis arvensis</i> Linn.	Primulaceae	Krishnaneel	Whole plant	October-February	Decoction of plant is given in gout, hydrophobia, leprosy and also used as fish poison.
7.	<i>Argemone mexicana</i> Linn.	Papaveraceae	Satyanasi	Stem and seeds	October-March	Juice of stem and leaves is given in jaundice and diseases.
8.	<i>Asphodelus tenuifolius</i> Cas.	Liliaceae	Piyaji	Stem and leaves	October-february	Decoction of stem and leaves is given in malaria and in urinary troubles.
9.	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Punarnava	Whole plant	Round the year	Decoction of root, stem and leaves is given to cure jaundice and as cardiac stimulant.
10.	<i>Centella asiatica</i> Urban.	Apiaceae	Bramhi	Leaves	October-March	Dried leaf powder along with mishri is given to cure mental disorder and memory loss.
11.	<i>Chenopodium album</i> Linn.	Chenopodiaceae	Bathua	Stem and leaves	October-March	Plants are useful in vitiated condition of pitta, peptic ulcer, seminal disorder and cardiac disorder.
12.	<i>Coccinia indica</i> Waa.	Cucurbitaceae	Jangali kunduru	Leaves and root	July-December	Juice of fresh leaves and roots is given to cure diabetes.
13.	<i>Commelina benghalensis</i> Linn.	Commelinaceae	Kankaua	Leaves	July-October	Leaf paste is applied to cure leprosy and seeds as laxative.
14.	<i>Convolvulus arvensis</i> Linn.	Convolvulaceae	Hirankhuri	Roots	October-February	Root extract is purgative.
15.	<i>Cynodon dactylon</i> (L.)Pers.	Poaceae	Doobghas	Whole plant	Round the year	Decoction of plant is useful in vitiated condition of pitta and kapha.
16.	<i>Cyperus irria</i> Linn.	Cyperaceae	Nagarmotha	Rhizome	Round the year	Powdered rhizome along with mustered oil is used to cure rheumatic pain.
17.	<i>Cyperus rotundus</i> Linn.	Cyperaceae	Motha	Rhizome	Round the year	The rhizome is used in the treatment of irregular menstruation, diarrhoea & vomiting.
18.	<i>Eclipta rostrate</i> Roxb.	Asteraceae	Bhangra	Whole plant	July-December	Dried powdered plants are given to cure hepatic and spleen enlargement. Juice of leaves along with coconut oil used as hair tonic.
19.	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Badi dudhi	Whole plant	July-April	Juice of fresh plant is given in dysentery, colic and intestinal worms.
20.	<i>Euphorbia microphilla</i> Linn.	Euphorbiaceae	Chhoti Dudhi	Whole plant	Round the year	Dried powder of plant is used for lactation in breast feeding mother.
21.	<i>Fumaria indica</i> Lamk.	Fumariaceae	Pitpapra	Whole plant	October-March	Dried powdered plants are used as antipyretic and blood purifier.
22.	<i>Lathyrus sativus</i> Linn.	Fabaceae	Matri	Leaves & seeds	October-February	Seeds are used as source of protein and green leaves as fodder for animals.
23.	<i>Leucas aspera</i> Wall.	Lamiaceae	Bodki	Whole plant	August-December	Decoction of plants is used as antipyretic, leaves juice is applied in skin disease and rheumatism.

24.	<i>Medicago denticulata</i> Willd.	Fabaceae	Alfalfa	Whole plant	August-December	Decoction of plant is used as blood purifier and in problems relating to menstruation and menopause.
25.	<i>Melilotus alba</i> Medik.	Fabaceae	Banmenthi	Whole plant	October-December	Paste of plant used as poultice on pain and swelling.
26.	<i>Ocimum basilicum</i> Linn.	Lamiaceae	Bantulsi	Leaves	July-December	Powdered leaves are given with honey and black paper to cure malaria and essential oil from leaves are used as mosquito repellent.
27.	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Khattibuti	Leaves	August-February	Juice of leaves is used as blood purifier and diuretic.
28.	<i>Phyllanthus niruri</i> Linn.	Euphorbiaceae	Bhumiaonla	Whole plant	August-December	Decoction of plants is used to cure jaundice and liver dysfunction
29.	<i>Portulaca oleracea</i> Linn.	Portulacaceae	Kulpha	Stem and leaves	July-February	Stem and leaves are eaten as vegetable to cure scurvy and liver disorders.
30.	<i>Rumex dentatus</i> Linn.	Polygonaceae	Jangali palak	Leaves	October-February	A dried powdered leaf soaked with water is used to massage on body to cure sunstroke and burning sensation.
31.	<i>Sphaeranthus indicus</i> Linn.	Asteraceae	Gorakhmundi	Whole plant	October-April	Dried powdered plant along with mishri and milk is used to enhance body vigour and health.
32.	<i>Solanum nigrum</i> Linn.	Solanaceae	Makoi	Whole plant and berries	August-April	A fresh ripe berry used in fever and hydrophobia, plant juice is given in chronic liver disorder.
33.	<i>Solanum xanthocarpum</i> Linn.	Solanaceae	Bhatkataiya	Whole plant	October-May	Decoction of plant is carminative and expectorant, powdered stamen with honey given to cure asthma.
34.	<i>Tridax procumbans</i> L.	Asteraceae	Patharchatta	Leaves	July-April	The leaves paste is applied to cure blisters, boils, cuts and wounds.
35.	<i>Vetiveria zizanoides</i> Nash.	Poaceae	Khas	Stems and Roots	Round the year	Stems used as broom and roots containing essential oil used in preparation of sweet dishes and perfumes.
36.	<i>Vicia hirsuta</i> Koch.	Fabaceae	Ankari	Leaves	October-February	Paste of leaves applied externally on cuts and wounds.
37.	<i>Xanthium strumarium</i> L.	Asteraceae	Gokhuru	Plant and seeds	August-February	Decoction of plant is given in malaria and roasted seeds are given in small pox.

bite, pyorrhoea, leprosy, jaundice, malaria, mental disorder, diabetes, rheumatism, diarrhoea, cuts and wounds, male sterility, intestinal worms, etc. This study would be beneficial for the enrichment of Traditional Knowledge Digital Library (TKDL) project at district level. Keeping in view the importance of traditional knowledge, a collaborative project between Council of Scientific and Industrial Research, Ministry of Science and Technology and department of AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy), Ministry of Health and Family Welfare was initiated to create TKDL for Indian system of medicine. Authors concluded that there are many ways of properly utilizing such weedy species in the promotion of human welfare as presented in Table-1. Presented all Information on weed species were

originally documented from local communities of the area along with conservation status. Thus there is a huge potential of medicinal plants in health care of not only in rural culture but also in the urban areas this district.

CONSERVATION STATUS

The weeds are important resource of livestock and provide just enough to survive for rural people not only in India but also at global level. The weeds can be culturally important for farmers. The role of weeds, in traditional medicinal floras has been overlooked in most areas of U.P. in terms of conservation. Therefore, the weeds can be scored using the IUCN Categories and Criteria (IUCN 2011) as locally threatened. In recent years weeds diversity of this area in general is threatened due to rapid increase in population and various

anthropogenic activities like development of inhabitants, construction, development of agricultural lands and deforestation. Hence, there is immediate need to conserve the existing species.

CONCLUSION

The herbal medicines have no side effects and man can get it easily from the nature. Keeping in view the importance of medicinal flora, this study was undertaken to document of ethnomedicinal weed species along with their local conservation status. This study aims to remove the misconception that weeds are useless, as some of these weeds have ethnomedicinal values globally and would be good source of new drug discovery in future. Since in Auraiya district ethnomedicinal study of weeds is done for the first time, this work will necessarily enrich the TKDL project at district level. The present study revealed that the people of the area are very much close to natural vegetation, both in their habitat and livelihood. So, the people of the area have empirical observations of nature and by communicating with other people of their culture, they derive indigenous knowledge of the local plants. Authors also noticed that the people rely on traditional medicines for their primary health care needs.

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