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Aromatic Medicinal Plant Resources in Uttar Pradesh, India

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Abstract

A study on the native uses of ethnomedicinal species was carried out in the Lakhimpur-kheri district of Uttar Pradesh state in India with the major objective of identifying different medicinal plant species.Production and productivity of many wild- type plants have increase manifolds but the challenges of malnutrition and threat of climate change continues by the time. The ethnobotanical data were collected through questioners by interviewing local communities and Hakims. The medicinal practitioners were treating the common diseases like cough cold, snake bite, diabetes, wounds, fever, toothache and the antitumor activity. In total 21 species belonging to 18 Genera and 15 Families were recorded which were used by inhabitants of the area.

Keywords: Medicinal plants; Wild edible plants; Lakhimpur-kheri District; Uttar Pradesh.

Introduction

Human beings have always made use of their native flora, not just as a source of nutrition, but also for fuel, medicines, clothing, dwelling, and chemical production. Traditional knowledge of plants and their properties has always been transmitted from generation to generation through the natural course of everyday life [1]. Documentation of the indigenous knowledge through ethnobotanical studies is important for the conservation and utilization of biological resources [2]. Therefore, establishment of the local names and indigenous uses of plants has significant potential societal benefits [3]. In recent years, traditional use of plants for medical purposes has drawn the attention of researchers in our country as well [4-9]. World over tribal population still store a vast knowledge of using local plants as food material and other specific uses [10]. An Ethnobotanical field study reveals that the ethnic people have considerable traditional knowledge of wild-type plants and their utilization. The literacy percentage among between total people, tribal only 0.4% is found. They live in group comprising 8-10 families scattered over a wide range in terai region. The Tharu tribal inhabiting widely separated namlets in the terai region were studied for the first time for collection of ethnobotanical data. They follow Hinduism however there are quite a handful of them who have taken up other religions like Islam, Animism. It is a recent phenomenon that quite a few number of Tharu tribes have got influenced by the preaching of Buddhism as well as by Christianity. Each and every village of Tharu community has got their indigenous deities like Bhuinyar and Gor-raja. The vegetation growing in these forests plays a vital role in the life and health care of the tribes.

Materials and Methods

The Dudhwa National Park lies in the sub-Himalayan region referred to as the Terai belt. The Park is tucked between India and Nepal in the Lakhimpur-kheri District of the Indian State of Uttar Pradesh, is located between 27° 41' and 28° 42' N latitudes and 80° 2' and 81° 19' E longitudes. Dudhwa is the last remnant of Terai region, one of the most endangered ecosystems on the planet.The field tour was undertaken during March 2012-March 2013 covering different areas in the remote tribal populated areas. Plants of ethno-economic importance were recorded from knowledgeable local people, especially the village leaders, Baidyas and Hakims who accompanied the authors in the field. The information obtained was cross-checked with other persons. Some plants were already known, but the modes of their uses are different and quite interesting. It was confirmed with the available literature [11-14]. The voucher specimens were collected, processed and have been deposited in the ethnobotanical herbarium, NBRI Lucknow. The scientific names, vernacular name, phenology, chemistry and their mode of utilization are also given.

Results

The present investigations have recorded 21 aromatic medicinal plant species used by tribal and rural communities in north eastern part of Lakhimpur-Kheri District. Our study shows that many Gaudi-Funta households living close to the Dudhwa National Park harvest date and that it is a relatively profitable activity. The Ethnomedicinal data presented herein are only one major head namely; ethnomedicinal species used by tribal peoplefor various purposes Table 1.

Medicinal plants are common and medicinally important to treat various diseases. The local people of Gauri-funta preferred preparing the medicines by plants either as single or as in a combination with two or several plants and plant parts, since the combination rapidly cures the diseases and also enhance the immunity power of the patients. For example Extract of *Cordia dichotoma* leaves is used to cure cough but is also used in hair oil. While Equal amount *Tamarandus indica* and *Ficus racemosa* stem bark powder mix in coconut oil and applied on just burned skin with help of feathers of hen. This is constant with the other general observation which has been reported earlier in relation to medicinal plant studies by the Indian Traditional System of Medicine like Siddha and Ayurveda (Kirtikar and Basu; Asolkar et al.,) [31,22]. The ethanol extract of *Dillenia Pentagyna* showed the most potent antitumor activity, i.e. % ILS ~ 55% and % ILS ~ 48% at a dose of 50 and 100 mg/kg/day [32]. Different plant parts of these species, such as, root, leaf, fruit, bark and seed were used as medicine.

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S.N.	Botanical name /Family	Vernacular name / Life form	Phenology	Chemistry	Mode of utilization
1.	*Abrus precatorius* Linn./ Fabaceae	Gumachi /climber	July/ November	Two new steroids- abricin and abridin isolated from seeds [14].	Root powder is used for the treatment of scorpion bite.
2.	*Abutilon indicum* (Linn.) Sweet / Malvaceae	Kanghi / Shrub	September / November	Amino acids, glucose, fructose, and galactose isolated from leaves [15].	Eat the four to five leaves for regularity in Menstrual cycle.
3.	*Achyranthes aspera* Linn/ Amaranthaceae	Aghada / Herb	October/ March	Ecdysterone (Polypodine-A) from roots and two oleanolic acid based Saponin from fruits [16].	The plant is used in eye disease and antifertility.
4.	*Adhatoda zylamei* Medic/ Acanthacea	Arusa / Shrub	October/ April	Four new quinozoline alkaloids- vasicoline, adhatodine, vasicolinone and anisotine isolated from inflorescence [17].	Leaf power is cooked then after used in cold and cough.
5.	*Aegle marmelos* (L.) Corr. / Rutaceae	Bel / Tree	April/ August	6',7'-epoxyaurapten, marmesin-1''-α-L-rhamnoside and palmitic, oleic, linoleic, lienolenic & stearic acid [18].	Crushed leaves applied on knee joint pain. The ripe fruits are eaten.
6.	*Andrographis paniculata* Wall./ Acanthacea	Kalmegh/Herb	September / December	Stereo structure of a diterpene glucoside- neoandrographolide; Caffeic, chlorogenic and dicaffeoylquinic acids isolated from leaves [19].	Plant is used in malarial fever.
7.	*Aristolochia indica* Linn. / Aristolochiaceae	Israul / Climber	September / December	Two new sesquiterpene hydrocarbons- ishwarane and aristolochene from roots [20].	Leaf and fruit juice is used in fever.
8.	*Boerrahavia diffusa* Linn./ Nyctaginaceae	Gadapurna / Herb	Major part of the year	β-ecdysone, triacontanol and β-sitosterol 5,7-dihydroxy, 3, 4'-dimethoxy and 6, 8 dimethyl flavone [21].	Root is used in Jaundice.
9.	*Datura innoxia* Mill. / Solanaceae	Datura / Shrub	July/ December	Alkaloid rich species, such as tropinone, tropine, scopine pseudotropine, scopoline,etc.[22].	Seed paste along with Koina oil is used in arthritis.
10.	*Carissa opaca* Stapf / Apocynaceae	Karaunda / Shrub	March/ October	Carissone [23].	Root paste is used as body pain.
11.	*Cassia fistula* Linn./ Caesalpiniaceae	Ahiroga / Tree	April/ October	Rhein, glucose, sucrose and fructose isolated from bark [24].	Dry fruit is making powder then used like toothpaste.
12.	*Cordia dichotoma* Forst./ Boragenaceae	Lasoura / Tree	March / May	Macrophylline-β-sitosterol, α- lienolenic, palmitic, linoleic and oleic acids [25].	Leaf power is used as cough and cold.
13.	*Dillenia pentagyna* Roxb./ Discoreaceae	Agai / Tree	April /June	Alkaloids, flavonoids, tanins and Saponin are isolated from fruits [8].	The leaf extract isused as anticancer diseases.
14.	*Ficus religiosa* Linn./ Moraceae	Pepal / Tree	April / September	Tannins, saponin, flavonoids, steroids, terpenoids and glycosides [26].	Fruit along with milk is used in sterile women.
15.	*Ficus racemosa* Linn. / Moraceae	Gular / Tree	April / July	β– Sitosterol glucoside, Friedelin and lupeol isolated from stem bark [27].	Bark power is used as medicine.
16.	*Scopariadulics* Linn./ Scorphulariaceae	Bundighas / Herb	Most part of the year	Friedelin, glutinol, α-amyrin, betulinic, iffaionic and dulceoic, coixol and betulinic acid isolated from roots [27].	The leaf paste is applied boiled and skin disease.
17.	*Solanum indicum* Linn. / Solanaceae	Tukovilati/ Shrub	Most part of the year	Glycoalkaloid solasonine, solanine isolated from fruits [7].	Seeds are used in toothache.
18.	*Solanum surattense* BurmF./ Solanaceae	Bhatkoya /Herb	December/ June	Solasodine isolated from berries of both normal and albino strains [27].	The root and stem is used for easy delivery.
19.	*Solanum nigram* Linn. / Solanaceae	Makoia/ Herb	Most part of the year	Fatty oil isolated from seeds contained palmitic, stearic, oleic and linoleic acid along with linolenic acid [28].	The leaf decoction is given to women twice a day in delivery fever.
20.	*Tamarindus indica* Linn./ Caesalpiniaceae	Imli / Tree	May /April	A polysaccharide isolated from seeds contained glucose, galactose and xylose [29].	Stem bark and leaf are used as medicine for joint pain.
21.	*Ziziphus xylopyrus* Willd./ Rhamnaceae	Kathber / Tree	April / November	Betulinic acid from Wood and bark [30].	The fruits and bark is used as tannin.

Table 1: Ethnomedicinal plant species used by tribal people for various purposes.

Conclusion

Nowadays, data on restricted population and scarce distribution the species like *Achyranthes aspera*, *Aegle marmelos*, *Andrographis paniculata*, *Cordia dichotoma*, *Carissa opaca*, *Ziziphus xylopyrus*, *Tamarindus indica* and *Dillenia pentagyna*were observed locally threatened in the area need both, *in-situ* and *ex-situ* conservation and urgent protection for sustainable utilization.

The species like *Cordia dichotoma*, *Dillenia pentagyna*, *Ficus racemosa*, *Tamarindus indica, Solanum surattense, Scopariadulics*, *Achyranthes aspera, Boerrahavia diffusa, Achyranthes aspera* and *Aegle marmelos* were observed as most important medicinal values. Cultivation is often proposed as an alternative to wild harvesting to reduce pressure on tribe populations and improve local livelihood. Of these maximum numbers of plants belong to the family *Moraceae* and *Rhamnaceae*, which shows a significant ethnobotanical diversity in different regions of north eastern part of Lakhimpur-kheri District.

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