



Ethnobotanical knowledge of rural communities in Gwalior district, Madhya Pradesh, India: Basis for biodiversity conservation

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Abstract

The home and kitchen gardens in rural areas serve as an important source of traditional medicinal plants for day to day treatment of certain common diseases. Several species of plants such as tulsi, neem, dhatura, akh, onion, garlic, bottle gourd, bitter gourd, papaya, guava, mango, lemon, drumsticks, etc. are found growing very commonly in these gardens. The knowledge about the medicinal uses of these plants is nowadays limited to only a few people among these communities and it is diminishing day by day. Also due to environmental pollution, increasing population growth and over demand of medicinal plants without knowledge of conservation many of the medicinal plants are under threat. Thus there is need to preserve this traditional knowledge which may be a basis for biodiversity conservation. The present paper deals with the study of ethno botanical knowledge of people in rural communities in Gwalior district of Madhya Pradesh. A total number of 26 plant species from 22 families were found to have ethno botanical importance.

Keywords: medicinal plants, traditional knowledge, biodiversity conservation, rural communities, ethno botanical knowledge

Introduction

Gwalior district in Madhya Pradesh is located 22.22 degrees N Latitude and 78.18 degrees E Longitude. The district is situated in the North East of Madhya Pradesh. It is a well known tourist place due to historical importance. There are 04 tehsils in Gwalior district. Total geographical area is 5214.00 sq. km. Plants and their parts are being used by man for health and other basic needs since ancient times (Vema *et al*, 2015). India belongs to one of the richest vegetation of the world as it has a wide range of climatic conditions and environment (Shankar and Majumdar, 1993) [6]. In rural areas people have great knowledge regarding the traditional uses of plants growing around them. In rural communities this knowledge is limited to only a few persons and is transferred from one generation to another. Nowadays this knowledge among these people is gradually diminishing (Verma *et al*, 2015). Due to various natural and man made reasons such as environmental pollution, increasing population growth, urbanization and over demand of medicinal plants many of the plant species are under threat. Many people in rural communities have good

knowledge about these plants and the methods of their uses.

The present study was done to collect and record the information on ethno botanical knowledge of the rural communities of plant species in Gwalior district of Madhya Pradesh.

Materials and methods

The study was carried out by survey in Dabra tehsil of Gwalior district and some surrounding villages. Dabra is located in the East of Gwalior and near Datia district. Local people, villagers, knowledgeable and experienced persons, medicine man were interviewed and the ethnobotanical knowledge of plants and their efficacy was collected and recorded.

Results

The paper deals with 26 plant species having ethnobotanical importance which have been enumerated in Table 1. The plant species have been arranged alphabetically according to their botanical names, family, habit, local name and uses.

Table 1: List of plants of Ethnobotanical importance and their uses.

S.No	Plant species	Family	Habit	Local name	Uses
1.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb	Latjeera	1. Root paste used for scorpion bites and skin diseases. 2. Seeds used in asthma.
2.	<i>Adhatodavastica</i> Nees.	Acanthaceae	Shrub	Adusa	1. Leaf juice very effective for cold, cough, removal of phlegm and asthma.
3.	<i>Aeglemarmelos</i> L.	Rutaceae	Tree	Bel	1. Leaves offered to Lord Shiva. 2. Fruit pulp useful in digestive disorders. 3. Fruit pulp and leaves used to lower blood sugar levels.
4.	<i>Allium cepa</i> Linn.	Liliaceae	Herb	Piyaz	1. Juice of bulb used for hair loss. 2. Juice of bulb with honey used for cold, asthma and bronchitis.

S.No	Plant species	Family	Habit	Local name	Uses
5.	<i>Allium sativum</i> Linn.	Liliaceae	Herb	Lahsun	1. Cloves cooked in mustard oil. Oil is used for earache and applied on chest for congestion. 2. Prevents heart diseases by lowering cholesterol. 3. Used for thinning of blood.
6.	<i>Aloe vera</i> L.	Asphodelaceae	Herb	Guwarpathha	1. Leaf gel or juice used for digestive problems. 2. Gel used for all types of skin diseases, wounds, burns, arthritis, joint pains, diabetes and weight loss.
7.	<i>Argemonemexicana</i> L.	Papaveraceae	Herb	Peelikatili	1. Juice of plant or root paste cooked in mustard oil used for skin infections. 2. Latex used on itches, eczema and boils.
8.	<i>Azadirachta indica</i> L.	Meliaceae	Tree	Neem	1. All parts used for bacterial, fungal and viral infections and all skin diseases. 2. Leaves used for diabetes. 3. Used for pest control. 4. Stem for tooth cleaning. 5. Oil for skin and hair problems.
9.	<i>Boerhaaviadiffusa</i> L.	Nyctaginaceae	Herb	Punarnava	1. Whole plant very effective in jaundice and liver problems. 2. Plant is diuretic and anti-inflammatory.
10.	<i>Calotropis gigantea</i> R.Br.	Asclepiadaceae	Shrub	Aak	1. Plant is worshipped. 2. Flowers offered to lord Shiva. 3. Latex with turmeric powder used for skin problems. 4. Leaves used for sciatica and inflammation.
11.	<i>Carica papaya</i> L.	Caricaceae	Tree	Papeeta	1. Fruit good for digestion, vision and blood pressure. 2. Leaf juice used to treat dengue fever.
12.	<i>Carum copticum</i> L.	Apiaceae	Herb	Ajwain	1. Dry fruits with black salt and hot water used for stomachache, gas and acidity. 2. Smoke of dry fruits used as bronchodilator in asthma. 3. Dry fruits used for cold and cough. 4. Paste of fruits in water used for skin diseases.
13.	<i>Cassia fistula</i> L.	Caesalpinioideae	Tree	Amaltas	1. Ripe fruits used for ghutti. 2. Fruits used as laxative. 3. Bark used for inflammatory swellings.
14.	<i>Cissus quadrangularis</i> L.	Vitaceae	Climber	Harjuri	1. Stem used for weak bones. 2. Stem paste with milk used for bone fractures, osteoarthritis, osteoporosis and joint pains.
15.	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	Herb	Aamahaldi	1. Powder with mustard oil used for sprains, Inflammations and skin Diseases. 2. Used for gas and bloating.
16.	<i>Curcuma longa</i> L.	Zingiberaceae	Herb	Haldi	1. Used in all hindupoojas and rituals. 2. Powder with water or honey treats skin diseases. 3. Powder with hot milk used for injuries, cold, cough, fever, bodyache, etc. 4. Used for wound healing.
17.	<i>Datura metel</i> Linn.	Solanaceae	Herb	Dhatura	1. Fruits and flowers offered to lord Shiva. 2. Paste of leaves applied for itching in eczema and healing wounds.
18.	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Tree	Aaonla	1. Tree is worshipped. 2. Fruits used to make triphala and chavanprash. 3. Fruits used for digestive, respiratory, skin disorders and hair treatments.
19.	<i>Ficus religiosa</i> Linn.	Moraceae	Tree	Peepal	1. Sacred tree worshipped by hindus. 2. Leaves and latex used for respiratory and skin disorders and healing of wounds.
20.	<i>Mangifera indica</i> Linn.	Anacardiaceae	Tree	Aam	1. Leaves used as torans on religious occasions. 2. Dried stem used in yagyas. 3. Tender leaves used for diabetes. 4. Raw fruit used to cure sunstroke.
21.	<i>Momordica charantia</i> L.	Cucurbitaceae	Climber	Karela	1. Fruit juice used to lower blood sugar levels and as blood purifier. Also treats skin diseases.
22.	<i>Moringa oleifera</i> Lam.	Moringaceae	Tree	Saijan	1. Leaves cooked and used for skin infections. 2. Flowers cooked and used for urinary problems. 3. Fruits and seeds used to prevent cardiac problems, arthritis and gout.
23.	<i>Murrayakoenigii</i> Linn.	Rutaceae	Tree	Curry patta	1. Leaves used for flavouring foods. 2. Leaves used for diabetes, weight loss and to stabilize cholesterol. 3. Leaves cooked in oil used for hair and skin treatment.
24.	<i>Ocimum sanctum</i> L.	Lamiaceae	Herb	Tulsi	1. Holy plant worshipped by hindus. 2. Leaves used in all poojas. 3. Decoction of leaves used for cold, cough and bronchitis. 4. Leaf paste used for rashes, eczema and ringworm.
25.	<i>Psidium guajava</i> L.	Myrtaceae	Tree	Amrood	1. Fruits used in constipation and digestive problems. 2. Fruits maintain blood sugar levels and cholesterol. 3. Decoction of leaves used for toothache.
26.	<i>Solanum nigrum</i> L.	Solanaceae	Herb	Makoi	1. Leaves chewed to cure mouth ulcers. 2. Paste of leaves for skin diseases. 3. Decoction of stem and berries is diuretic. 4. Green berries mashed and applied on ringworm.

Discussion

A total number of 26 plant species from 22 families were found to have ethnobotanical importance. Among these 10 are trees, 02 shrubs, 12 herbs and 02 climbers. Some are wild and

others domesticated. 08 plants have ethnobotanical importance in Indian traditional customs, whereas all 26 plants had ethno medicinal use. Most of the plants were reported to be useful in skin and respiratory diseases. *Cissus quadrangularis* L. has

been found to be very effective in bone fractures. Use of plants in Indian traditional customs has been reported by Goel, 1999; Singh, 2002; [8] Pandey and Sharma, 2014 [4] and Sharma *et al.*, 2016 [7]. Traditional use of many of these plants as medicine has been reported by Ahirwar and Shakya, 2013 [1]; Tiwari, 2015 [9]; Bajpai and Agarwal, 2015 [2] and Rachana *et al.* 2016 [5].

People in rural communities have vast traditional knowledge about plants which is perishing gradually due to lack of interest and loss of biodiversity. This traditional knowledge of rural communities may provide a basis for biodiversity conservation as they grow plants in home gardens.

Acknowledgements

The author is thankful to The Head, Department of Botany and Principal, Govt. K.R.G. P.G. Autonomous College, Gwalior (M.P.).

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