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## RESEARCH ARTICLE

### MEDICINAL PLANTS USED BY TRADITIONAL HEALERS IN DATIA DISTRICT OF MADHYA PRADESH, INDIA

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#### ABSTRACT

An ethnobotanical survey was undertaken to collect information from traditional healers on the use of medicinal plants in Datia district of Bundelkhand during study period. The indigenous knowledge of local traditional healers and the native plants used for medicinal purposes were collected through questionnaire and personal interviews during field trips. The investigation revealed that, the traditional healers used 35 species of plants distributed in 33 genera belonging to 24 families to treat various diseases. In this study the most dominant family was Fabaceae and trees were most frequently used for the treatment of diseases. The documented medicinal plants were mostly used to cure various human diseases. This study showed that many people in the studied parts of Datia district still continue to depend on medicinal plants at least for the treatment of primary healthcare. The traditional healers are dwindling in number and there is a grave danger of traditional knowledge disappearing soon since the younger generation is not interested to carry on this tradition

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#### INTRODUCTION

Utilization of plants for medicinal purposes in India has been documented long back in ancient literature because they are essential to human survival. The consumption, management and valuation of wild plants are central aspects of the traditional knowledge in many human populations. Thus, plants gathering, the diffusion and conservation of knowledge within the community are traditional practices that have contribution to the subsistence of many cultures. In most of the societies, the medical system coexists with several traditional systems. These traditional medical systems are generally based on the uses of natural and local products, which are commonly related to the people's perspective on the world and life (Toledo *et al.*, 2009). World Health Organization has made an attempt to identify all medicinal plants used globally and listed more than 20,000 species (Pandey *et al.*, 2008). According to the WHO more than 80 % of the world's population relies on traditional herbal medicine for their primary health care (Vijayan *et al.*, 2007). Plants continue to serve as possible sources for new drugs and chemicals derived from various parts of plants (Tijani *et al.*, 2008). In recent time, there has been a marked shift towards herbal cures because of the pronounced cumulative and irreversible reactions of modern drugs. However, due to over population, urbanization and continuous exploitation of these herbal reserves, the natural resources along with their related

traditional knowledge are depleting day by day (Pande *et al.*, 2007). In India, there are about 54 million indigenous people of different ethnic groups inhabiting various terrains. These indigenous groups possess their own distinct culture, religious rites, food habit and have a rich knowledge of traditional medicine (John, 1984; Pushpangadan and Atal, 1984; Anuradha *et al.*, 1986; Harsha *et al.*, 2002 and Parinitha *et al.*, 2005). Knowledge of herbs has been handed down from generation to generation for thousands of years (Bown, 1995). Herbal drugs constitute a major part in all traditional systems of medicines. Herbal medicine is a triumph of popular therapeutic diversity. Plants, above all other agents, have been used for medicine from time immemorial because they have fitted the immediate personal need are easily accessible and inexpensive (Mukherjee, 2008). In the recent past there has been a tremendous increase in the use of plant based health products in developing as well as developed countries resulting in an exponential growth of herbal products globally. An upward trend has been observed in the research on herbals. Herbal medicines have a strong traditional or conceptual base and the potential to be useful as drugs in terms of safety and effectiveness leads for treating different diseases. The contribution of medicinal plants to the health of rural especially tribal people in the Bundelkhand region is extremely important because most of the population still believe in traditional healthcare systems. Traditional knowledge of herbal medicines is gradually being lost, although some traditional herbal healers (Vaidyas, Ojhas) are still practicing an indigenous system of healthcare systematically and effectively. Primitive people

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Table 1. Ethnomedicinal plant used by traditional healers from remote villages of Datia district of Bundelkhand region

S.N.	Habit	Ailment	Mode of Administration	
1.	<i>Abutilon indicum</i> (L.) Sweet, Malvaceae Kanghii	Small shrub	To kill lice	<ul style="list-style-type: none"> <li>Paste of the leaves is applied on Scale to kill the lice.</li> </ul>
2.	<i>Acacia catechu</i> Willd., Fabaceae Khair	Tree	Disturbed menstruation	<ul style="list-style-type: none"> <li>The powder of bark is boiled in water for obtaining decoction. About 50 to 60 ml. of this decoction is given for twice a day for 15 days to treat disturbed menstruation cycle.</li> </ul>
3.	<i>Acacia nilotica</i> (Linn.) Willd. ex. Dil., Fabaceae Babool	Tree	Loose teeth & gum, mouth ulcers, pyorrhea and other dental care.	<ul style="list-style-type: none"> <li>The fresh bark is chewed 2-3 times in a day to strengthen loose teeth and gum. The Fresh bark is also chewed for mouth ulcers, pyorrhea and other dental care.</li> </ul>
4.	<i>Achyranthes aspera</i> L., Amaranthaceae Chirchita	Herb	Diabetes mellitus	<ul style="list-style-type: none"> <li>In order to treat diabetes mellitus, paste of the root, mixed with honey is made into pills of about 03 g. each; two pills are taken once daily with water.</li> </ul>
			Asthma	<ul style="list-style-type: none"> <li>About one teaspoonful seed powder is mixed one teaspoonful pure honey to prepare paste. A pinch of black pepper powder is also added in this paste and is given twice a day for one month for the treatment of Asthma.</li> </ul>
			Abscess	<ul style="list-style-type: none"> <li>The root paste is applied externally on the abscess.</li> </ul>
			Rheumatism and gout	<ul style="list-style-type: none"> <li>One teaspoonful root powder is mixed a pinch of black pepper and given thrice a day for 15 days for treating rheumatism and gout. Leaf paste together with mustard oil and camphor is applied locally in rheumatism and gout.</li> </ul>
6.	<i>Aegle marmelos</i> (Linn.) Correa, Rutaceae Bel	Tree	Acute dysentery and constipation	<ul style="list-style-type: none"> <li>The pulp of fully ripe fruit is mixed with cold cow milk (250 ml.) and given regularly empty stomach for once or twice daily to cure the problem of constipation. The pulp of a medium size fruit made into paste and is also administered once or twice in a day for 15 days to cure acute dysentery.</li> </ul>
			Fever	<ul style="list-style-type: none"> <li>About 250 g. leaves of <i>Aegle marmelos</i> and equal amount of leaf of Kalmegh are boiled in 1000 ml. water till it is reduced to 250 ml. for obtaining decoction. About 100 ml. of this decoction is administered twice a day for seven days to the patient of fever.</li> </ul>
			Jaundice	<ul style="list-style-type: none"> <li>Freshly plucked green leaves are soaked overnight in a glass of water. Next morning this water is taken empty stomach 2-3 times a day till cured.</li> </ul>
			Diabetes	<ul style="list-style-type: none"> <li>Equal quantity of leaves of <i>Aegle marmelos</i> and fruits of Anola are taken and juice is extracted. A teaspoonful of this juice is given regularly to treat diabetes.</li> </ul>
6.	<i>Ageratum conyzoids</i> L., Asteraceae Lukhadia	Herb	Cuts & wounds	<ul style="list-style-type: none"> <li>Leaves ground with calcium paste applied on cuts.</li> <li>Juice of whole plant utilized externally for wounds.</li> </ul>
7.	<i>Ailanthus excelsa</i> Roxb., Simaroubaceae Dakshinee neem	Tree	Jaundice	<ul style="list-style-type: none"> <li>About 80 to 100 g. fresh barks is ground fine and put into 150 ml. of water for 30 minutes and one teaspoonful sugar is added. This solution is filtered through cotton cloth. About 50 ml. of this infusion is taken once in morning for fifteen days to treat jaundice.</li> </ul>
8.	<i>Alstonia scholaris</i> (L.) R. Br., Apocyanaceae Saptaparnee	Tree	Lactation inducer	<ul style="list-style-type: none"> <li>The leaf latex is applied regularly on breast nipples to stimulate mammary gland for lactation in female after delivery.</li> </ul>
			Snake bite	<ul style="list-style-type: none"> <li>The bark latex is Utilized as antidote in snake bites and applied locally to the affected part.</li> </ul>
9.	<i>Alternanthera sessilis</i> (L.) R.Br.ex DC, Amaranthaceae Gudrisag and Patturah	Herb	Dysentery	<ul style="list-style-type: none"> <li>The juice of whole plant is taken to cure dysentery and tend utilized as vegetable.</li> </ul>
10.	<i>Anthocephalus cadamba</i> Miq., Rubiaceae Kadam	Tree	Normal as well as blood dysentery	<ul style="list-style-type: none"> <li>A little amount of stem bark is dried and boiled in water. The decoction so obtained is given once at the night before going to bed for three to five days to cure normal as well as blood dysentery.</li> </ul>
11.	<i>Argemone mexicana</i> L., Papaveraceae Satyanasi	Prickly herb	Fever	<ul style="list-style-type: none"> <li>About 100 g. root is boiled in 250 ml. water till the amount remains ¼ of total. One or two teaspoonful of this decoction is given with 250 ml. water twice a day for 2 to 3 days to treat fever.</li> </ul>
			Itching	<ul style="list-style-type: none"> <li>A handful seed are made into paste and mixed with coconut oil. This paste is applied over body part suffering from itching.</li> </ul>
			Eczema	<ul style="list-style-type: none"> <li>Whole plant (25 g.) is crushed along with black pepper (2 Nos.).The paste so obtained is applied on body part suffering from eczema.</li> </ul>
			Abscess/blisters	<ul style="list-style-type: none"> <li>Juice extracted from the leaves is applied on the affected body part from abscess/blisters.</li> </ul>
			Intestinal worms	<ul style="list-style-type: none"> <li>About ½ inch root is taken along with water three times a day to remove intestinal hookworms.</li> </ul>
	<i>Asparagus racemosus</i> Willd., Liliaceae Gwarpatha	Fleshy herb	Stomachache and urinary disorders	<ul style="list-style-type: none"> <li>Dried leaves are powdered and are taken orally to cure stomachache and urinary disorders.</li> </ul>

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13.	<i>Azadirachta indica</i> A. Juss., Neem	Meliaceae Tree	Skin infections including chicken pox Toothache Conjunctivitis Earache Ulcers and wounds Jaundice Scabies	<ul style="list-style-type: none"> <li>The decoction or infusion of leaves is utilized in bath to cure several skin infections including chicken pox.</li> <li>Fresh tender twig chewed as a 'Datoon' for relief from toothache.</li> <li>The leaf juice is mixed in equal amount of pure honey and Utilized as eye drop in conjunctivitis.</li> <li>The leaf juice mixed with pure honey is utilized for earache.</li> <li>Dry bark is rubbed on stone with water and applied on remedy for ulcers and wound for quick relief.</li> <li>Stem bark is boiled in water for obtaining decoction. About 100 ml of this decoction is mixed with one teaspoonful sugar and administered daily in the morning on empty stomach to treat jaundice.</li> <li>The bark ash is mixed with coconut oil to prepare a paste. The paste so obtained is applied in the morning and evening to treat scabies till cured.</li> </ul>
14.	<i>Bambusa arundinacea</i> Ait., Poaceae Bans	Woody grass	Weakness after fever	<ul style="list-style-type: none"> <li>Tender shoot is cut in to slices and made a recipe with onion. This recipe is taken for weakness after fever.</li> </ul>
15.	<i>Bauhinia racemosa</i> Lam., ,Maui	Fabaceae Tree	Stomachache	<ul style="list-style-type: none"> <li>About one to two teaspoonful juice of stem bark is given only once in the case of stomachache.</li> </ul>
16.	<i>Boerhaavia diffusa</i> , Shathee	Nyctaginaceae Herb	Renal calculi Jaundice	<ul style="list-style-type: none"> <li>About 50 to 60 g. amounts of leaves, little amount of powder of black pepper and one teaspoonful sugar are boiled in about 600 to 700 ml of water till the solution remains one-third. The decoction so obtained is given orally in renal calculi.</li> <li>The juice extracted from the whole plant is given orally for three days consecutively for the treatment of jaundice.</li> <li>The leaves are ground into fine paste and applied on the forehead.</li> </ul>
17.	<i>Bombax ceiba</i> L., Bombacaceae Semal	Tree	Headache Gynecological disorder Pimples Wound	<ul style="list-style-type: none"> <li>About 05 g. gum powder is given with water once or twice a day for seven days to treat gynecological disorder.</li> <li>The paste of thorns and milk is applied on the pimples till complete cure.</li> <li>A paste is prepared from bark with water and applied over wound till complete rest.</li> </ul>
18.	<i>Butea monosperma</i> (Lamk.) Fabaceae Chhiyola	Taub., Tree	Acidity	<ul style="list-style-type: none"> <li>Poultice prepared from cooked lukewarm flowers is tied on stomach to treat hyperacidity.</li> </ul>
19.	<i>Calotropis procera</i> (Ait) Asclepiadaceae Aak	Dryander, Shrub	Cholera	<ul style="list-style-type: none"> <li>The juice extracted from 15-20 g. roots is given twice daily for 5-7 days for the treatment of cholera.</li> </ul>
20.	<i>Cannabis sativa</i> L., Cannabaceae Bhang	Herb	Intestinal infections	<ul style="list-style-type: none"> <li>Tender twig mixed with common salt is given to cure intestinal infections in cattle.</li> </ul>
21.	<i>Capsicum annuum</i> L., Solanaceae Lal Mirch	Herb under shrub	Abdominal pain	<ul style="list-style-type: none"> <li>About 0.5 gr. powder of dried fruits is mixed with 02 gr. dry Zinger powder and given for the treatment of stomach pain due to stomach swelling and indigestion.</li> </ul>
22.	<i>Carica papaya</i> L., Caricaceae Papita	Tree	Intestinal worm infection	<ul style="list-style-type: none"> <li>About 02 g. or one teaspoonful dried seed are made into powder and given once daily for seven days with lukewarm water at the night time before going to bed to treat intestinal worm infection.</li> </ul>
23.	<i>Cassia fistula</i> Linn., Fabaceae Amaltas	Tree	Constipation Insect bites Bug repellent Bleeding Cough Constipation Leucorrhoea	<ul style="list-style-type: none"> <li>About 5 g. of fresh leaves paste is taken with lukewarm milk orally for seven days to treat constipation.</li> <li>The leaf and bark powder are mixed with mustard oil and applied externally on affected portion in case of insect bites.</li> <li>The mature pods of plant are put in bed as strong bug repellent.</li> <li>The fruit pulp is utilized to coagulate blood due to the external hunts and injuries.</li> <li>The ash obtained from the burnt pods is mixed with little salt and taken with honey twice or thrice daily for the treatment of cough.</li> <li>About 10 gr. fruit pulp is soaked in a glass of water overnight. Next morning filtered the water and given orally for quick relief in Constipation.</li> <li>One teaspoonful bark powder is given for 10 to 15 days to treat the leucorrhoea.</li> </ul>
24.	<i>Cassia tora</i> Linn., Fabaceae Puwar	Herb	Headache Ringworm	<ul style="list-style-type: none"> <li>About 02 to 03 g. seed powder is given with 250 ml. cow milk once a day for 4-5 days in the case of headache.</li> <li>The leaf decoction is applied over affected part of ringworm for 06 to 07 days.</li> </ul>
25.	<i>Catharanthus roseus</i> (L.) Apocynaceae Baramasi	G. Don., Herb	Nasal bleeding Blood sugar level and high blood pressure	<ul style="list-style-type: none"> <li>Two or three drops of leaf extract is poured in the nostril to cure nasal bleeding locally called 'Naksheer Footana'.</li> <li>About 10 to 15 leaves are given regularly in morning to control blood sugar level and high blood pressure.</li> </ul>

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26.	<i>Centella asiatica</i> (L.) Apiaceae Brahmi	Urban, Herb	Stomach disorder	<ul style="list-style-type: none"> <li>About a handful amount leaf are mixed with half teaspoonful common salt and made into paste. The paste so prepared is taken with 150 ml. once in day for stomach disorder.</li> <li>About a handful leaves are boiled in water to obtain decoction. The decoction so obtained is dropped in eyes to treat conjunctivitis and other eye injury.</li> </ul>
27.	<i>Cleome viscosa</i> Linn., Capparidaceae Hulhul	Herb	Conjunctivitis and other eye injury. Cuts, wounds & skin disease	<ul style="list-style-type: none"> <li>Leaf paste is applied externally for healing wounds &amp; cuts and also in skin diseases.</li> </ul>
28.	<i>Cynodon dactylon</i> (L.)Willd., Poaceae Dooba	Grass	Menstruation period and abdominal pain	<ul style="list-style-type: none"> <li>Plant extract is given to regularize the menstruation period and lower abdominal pain.</li> </ul>
29.	<i>Cyperus rotundus</i> , Cyperaceae Nagarmotha	Grass	To increase lactation and scorpion bite	<ul style="list-style-type: none"> <li>Paste of dried tuber is applied on breast of women after delivery to increase lactation and applied topically on bitten site of scorpion.</li> </ul>
30.	<i>Datura metel</i> L., Solanaceae Dhatura	Herb or under shrub	Stomachache Cough Arthritis Eczema	<ul style="list-style-type: none"> <li>Juice extracted from leaves massaged on belly gives immediate relief stomachache. Warm leaves are also put on the belly in stomachache.</li> <li>The extract is obtained from the roasted leaves. About one or two teaspoonful of this leaf extract is given with cow ghee once daily for 3 to 5 days for the treatment of cough.</li> <li>The leaves paste is applied over body parts suffering from arthritis.</li> <li>The powder of roasted fruits is mixed with sesame oil and cow milk for obtaining a paste. This paste is applied over body parts infected from Eczema.</li> </ul>
31.	<i>Dolichos lablab</i> L., Fabaceae Sem	Perennial twining herb	Leucorrhoea	<ul style="list-style-type: none"> <li>About 10 g. seed powder is given with milk once a day to cure leucorrhoea.</li> </ul>
32.	<i>Eucalyptus globulus</i> Labill., Myrtaceae Safeda	Tree	Leg swellings	<ul style="list-style-type: none"> <li>About 500 g. leaves are soaked in the 1000 ml. hot water and swelling legs are kept in that water to get relief.</li> </ul>
33.	<i>Euphorbia hitra</i> L., Euphorbiaceae Chhotee dudhee	Herb	Cut and wound Leucorrhoea	<ul style="list-style-type: none"> <li>The extract of the leaves is Utilized to antiseptic against heal the cuts and wounds.</li> <li>The leaves (50 g.) extract is given orally with honey once a day in the morning for a month to cure leucorrhoea.</li> </ul>
34.	<i>Ficus glomerata</i> Roxb., Moraceae Gular/Oomar	Tree	Heart disease, Boils Dysentery	<ul style="list-style-type: none"> <li>One fresh fruit taken orally at the time of morning in empty stomach helps in heart diseases.</li> <li>Latex of the plant is applied externally on boils.</li> <li>About 5 g. root powder is taken orally for treatment of dysentery.</li> </ul>
35.	<i>Ficus religiosa</i> Linn., Moraceae Pipal	Tree	Jaundice	<ul style="list-style-type: none"> <li>About 80-100 g. bark is ground fine and kept in 150 ml of water overnight. This is taken early in the next morning daily for 3 to 7 days for the treatment of jaundice.</li> </ul>

have acquired knowledge about medicinal properties of plants by trial and error, and have made an outstanding contribution to the origin and evaluation of many traditional herbal therapies in the Bundelkhand region. Documentation of indigenous knowledge and evaluation of the use of plants for a variety of purposes assume greater significance, not just to retain it, but also to keep it alive and make it available for future use because of rapid socio-economic and cultural changes that are taking place across the traditional community of the region.

## MATERIALS AND METHODS

### The study area

Bundelkhand region is situated between 23°8' -26°30' N latitude and 78°11'-81°30' E longitude in central part of India. The geographical location of Bundelkhand is in such a way that it acts as a gateway between the north and south India (Figure 1). The Bundelkhand region comprises of five districts of Uttar Pradesh viz., Jhansi, Lalitpur, Jalaun, Hamirpur and Banda; six districts of Madhya Pradesh viz., Datia, Tikamgarh, Chhatarpur, Panna, Damoh and Sagar and Lahar and Bhandar tahsils of Bhind and Gwalior districts, respectively. The topography of the region is characterized by its smooth flat lands and inter-mixed undulating topography of varied slope. The Bundelkhand is bounded by the Yamuna river in the north,

escarped ranges of the Vindhyan plateau in south, the Sindh river in the north-west and Bhanrer ranges in the south-east. The region is spread over 71618 km<sup>2</sup> and supports 12.45 million human populations as per 1991 census (Tyagi, 1997). The Datia district forms a part of Bundelkhand region covering an area of 2691 km<sup>2</sup> Datia is the smallest district of Madhya Pradesh forming eastern part of Gwalior commissionery. The district lies into a main body of land mostly on the Sindh-Paluj Doab. Datia district is situated between 25°28' and 26°20' North latitude and 78°10' and 78°45' E longitude. It has an average elevation of 302 meter. The district is bounded by Bhind and Gwalior district in the North, Shivpuri district of Madhya Pradesh and Jhansi district of Uttar Pradesh in the south, Gwalior and Shivpuri district in the west and Bhind district of Madhya Pradesh and Jhansi district of Uttar Pradesh in the east. Datia, the district headquarter is the only town with sufficient urban activities and is connected with Gwalior and Jhansi by the Delhi-Bhopal mainline of the Central Indian Railway. It is also accessible by the roads from Gwalior, Jhansi, Bhind and Shivpuri. The district is divided into four tehsil and four blocks of the same name i.e., Datia, Seondha, Bhandar and newly formed tehsil Indergarh. Thus district is predominantly a rural district there are 4 towns and 583 villages (MWR, 2009).

**Table 2. Representation of the families and plants studied at study site**

S.N.	Family	Name of Plants	No. of Plants
1.	Amaranthaceae	<i>Achyranthes aspera</i> <i>Alternanthera sessilis</i>	02
2.	Apiaceae	<i>Centella asiatica</i>	01
3.	Apocynaceae	<i>Alstonia scholaris</i> <i>Cataranthus roseus</i>	02
4.	Asclepiadaceae	<i>Calotropis procera</i>	01
5.	Asteraceae	<i>Ageratum conyzoids</i>	01
6.	Bombacaceae	<i>Bombax ceiba</i>	01
7.	Cannabaceae	<i>Cannabis sativa</i>	01
8.	Caricaceae	<i>Carica papaya</i>	01
9.	Cleomaceae	<i>Cleome viscosa</i>	01
10.	Cyperaceae	<i>Cyperus rotundus</i>	01
11.	Euphorbiaceae	<i>Euphorbia hitra</i>	01
12.	Fabaceae	<i>Acacia catechu</i> <i>Acacia nilotica</i> <i>Bauhinia racemosa</i> <i>Butea monosperma</i> <i>Cassia tora</i> <i>Dolichos lablab</i> <i>Cassia fistula</i>	07
13.	Liliaceae	<i>Asparagus racemosus</i>	01
14.	Malvaceae	<i>Abutilon indicum</i>	01
15.	Meliaceae	<i>Azadirachta indica</i>	01
16.	Moraceae	<i>Ficus glomerata</i> <i>Ficus religiosa</i>	02
17.	Myrtaceae	<i>Eucalyptus globules</i>	01
18.	Nyctaginaceae	<i>Boerhaavia diffusa</i>	01
19.	Papaveraceae	<i>Argemone Mexicana</i>	01
20.	Poaceae	<i>Bambusa arundinacea</i> <i>Cynodon dactylon</i>	02
21.	Rubiaceae	<i>Anthocephalus cadamba</i>	01
22.	Rutaceae	<i>Aegle marmelos</i>	01
23.	Simaroubaceae	<i>Ailanthus excels</i>	01
24.	Solanaceae	<i>Capsicum annum</i> <i>Datura metel</i>	02

### Local traditional healers

Local traditional healers having practical knowledge of plants in medicine were interviewed in villages of the district during the course of the study. During the course of the study, field visits were carried out in the study area. Methods of selecting informants depended upon the distribution of local people having folk knowledge. They were requested to collect specimens of the plants they knew or to show the plant species on site. These informants were traditional healers themselves or had tradition of healing in their families and had knowledge of the medicinal use of the plants. Fuel wood from the surroundings was the main energy source for cooking and eating. The wealth of medicinal plant knowledge among the people of this district is based on hundreds of years of beliefs and observations. This knowledge has been transmitted orally from generation to generation; however it seems that it is vanishing from the modern society since younger people are not interested to carry on this tradition.

### Interview with traditional healers

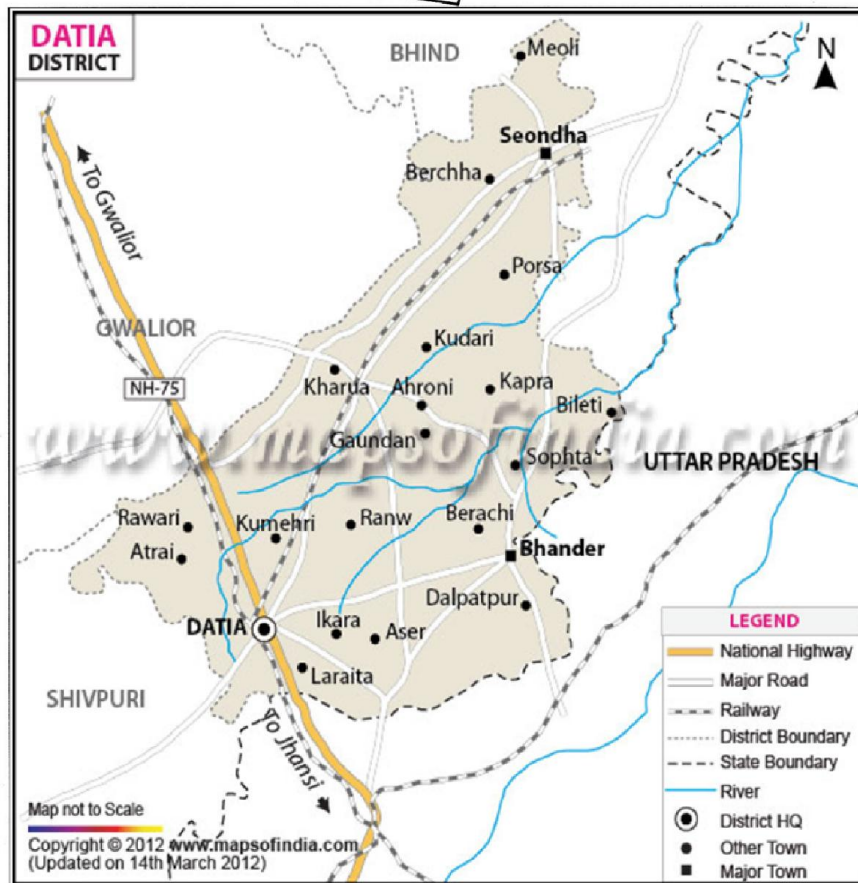
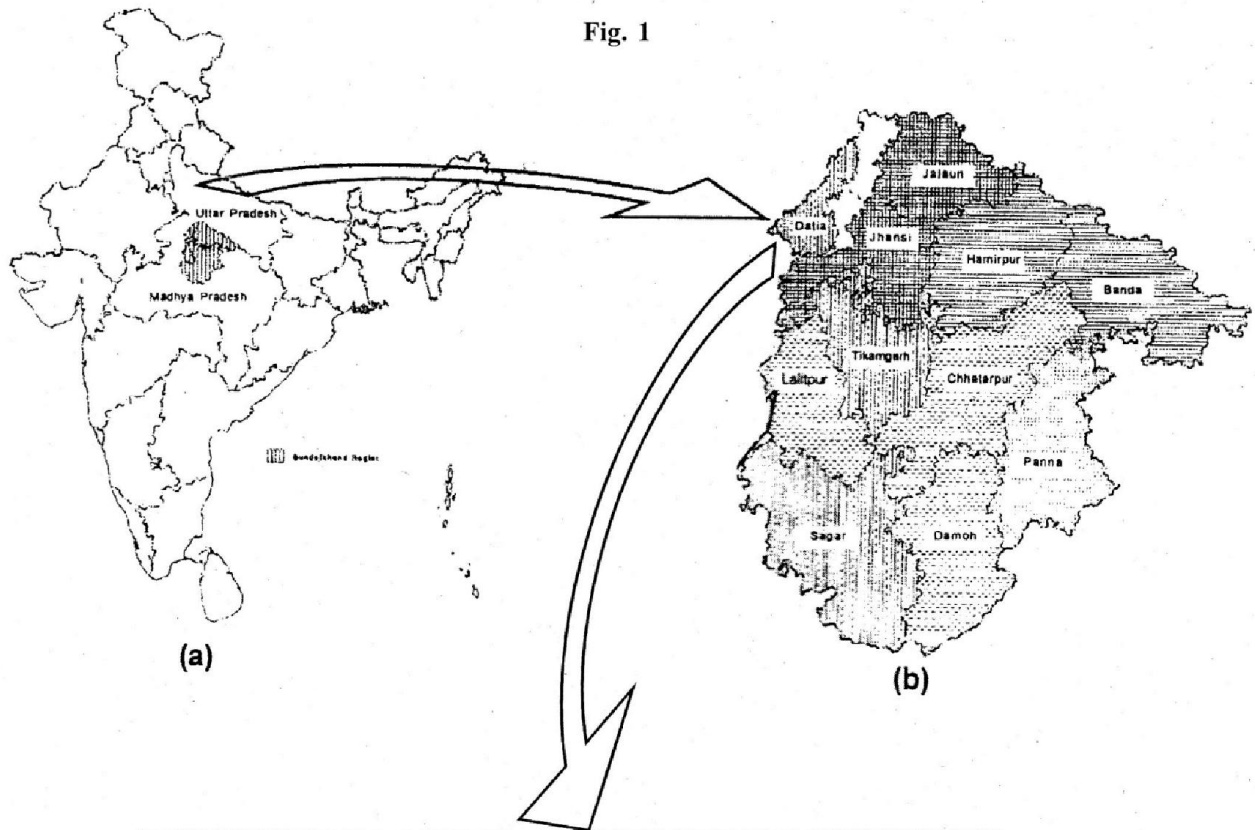
Adopting the methods of Jain (Jain, 1964), ethnomedicinal data were collected through general conversations with the

informants. The questionnaires were used to obtain information on medicinal plants with their local names, parts used, mode of preparation and administration. A total of 40 informants, comprising 30 males and 10 females were identified between the ages of 48 and 74. They were selected based on their knowledge of medicinal plants either for self-medication or for treating others. Informants were asked to come to field and show the plants with local name; the species mentioned by the informants were taxonomically identified.

S. N.	Habit	Name of Plant	No. of Plants
1.	Grass	<i>Cyperus rotundus</i> <i>Cynodon dactylon</i>	02
2.	Grass Woody	<i>Bambusa arundinacea</i>	01
3.	Herb	<i>Achyranthes aspera</i> <i>Ageratum conyzoids</i> <i>Alternanthera sessilis</i> <i>Boerhaavia diffusa</i> <i>Cannabis sativa</i> <i>Cassia tora</i> <i>Cataranthus roseus</i> <i>Centella asiatica</i> <i>Cleome viscosa</i> <i>Euphorbia hitra</i>	10
4.	Herb Fleshy	<i>Asparagus racemosus</i>	01
5.	Herb or under shrub	<i>Capsicum annum</i>	01
6.	Herb or under shrub	<i>Datura metel</i>	01
7.	Herb perennial twining	<i>Dolichos lablab</i>	01
8.	Herb Prickly	<i>Argemone mexicana</i>	01
9.	Shrub	<i>Calotropis procera</i>	01
10.	Shrub small	<i>Abutilon indicum</i>	01
11.	Tree	<i>Alstonia scholaris</i> <i>Bombax ceiba</i> <i>Carica papaya</i> <i>Acacia catechu</i> <i>Acacia nilotica</i> <i>Bauhinia racemosa</i> <i>Butea monosperma</i> <i>Cassia fistula</i> <i>Azadirachta indica</i> <i>Ficus religiosa</i> <i>Eucalyptus globulus</i> <i>Anthocephalus cadamba</i> <i>Aegle marmelos</i> <i>Ailanthus excelsa</i> <i>Ficus glomerata</i>	15

### Floristic inventory based approach

Almost all the plants were collected in flowering and fruiting period with the help of experienced rural people. While collecting the individual plant species thorough observations were made regarding their natural habitat. Every such plant was kept in vacuum and studied for its identification. The plants specimens after identification were subjected to drying between old news papers or filter papers and kept in wooden plant press. The old news papers or filter papers were changed daily for first week to prevent folding of soaked plants. The pressed specimens were some time kept to close to artificial heat to prevent dampness. The herbarium sheets of the identified plant were by fixing the plants with the help of a transparent cello tap. Each herbarium sheet contained information pertaining of Botanical Name, Local Name, Family, Date and Place of Collection. The sample of the plant species were identified with the help of local taxonomists and available flora (Duthie, 1994; Kanjilal, 1982; Kirtikar and Basu, 1999).



- (a) Location map of Bundelkhand Region in India  
 (b) Location map of Datia District in Bundelkhand Region  
 (c) Map of Datia District

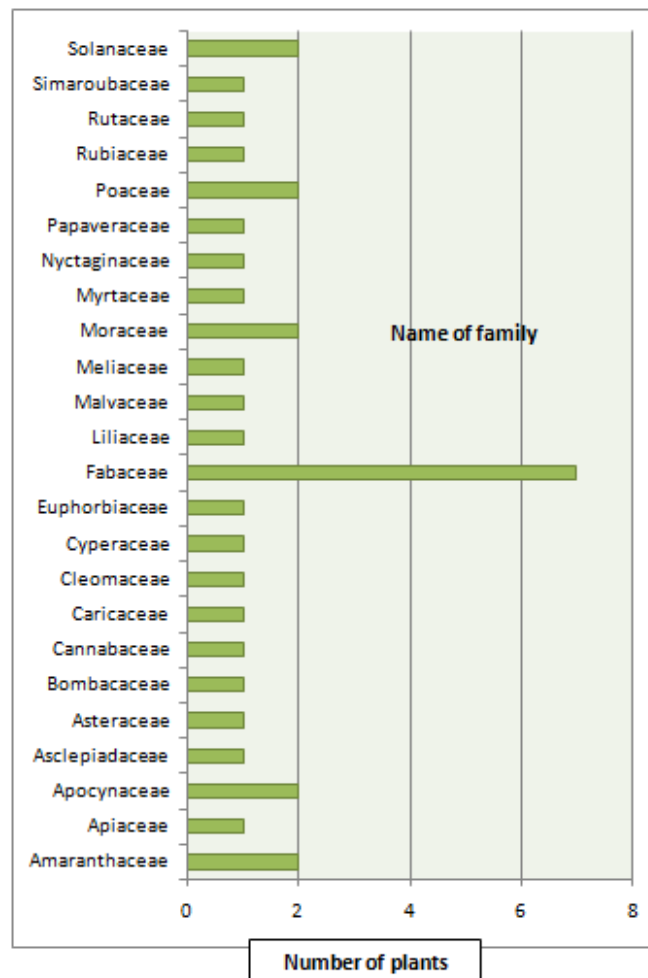


Fig. 2. Representation of the families and no of plants studied at study site

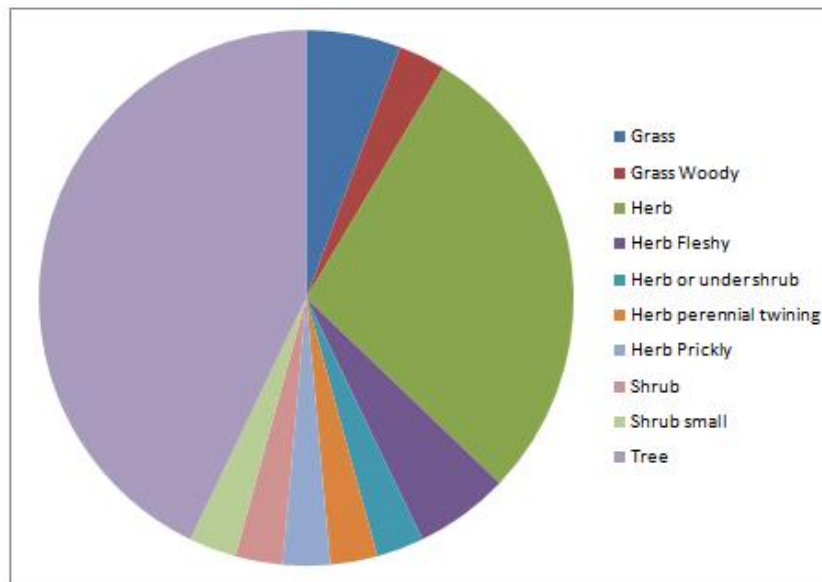


Fig. 3. Life form of plant species used for treatment of various diseases

## RESULTS AND DISCUSSION

The results of the study are presented in Table 1. The plants are arranged in alphabetical order. The present investigation comprises 35 species of ethno-medicinal plants distributed in

33 genera belonging to 24 families. For each species botanical name, family, local name, parts used, methods of preparation, administration and ailments treated are provided in the present study (tab.1). The highest numbers of Ethnomedicinal plants

were recorded in Fabaceae having 07 plants species. Five families namely Amaranthaceae, Apocynaceae, Moraceae, Poaceae, and Solanaceae were contributing 02 species. However, rest of the reported families contributes only one species each (Tab. 2 and Fig.2). Tree (31) was found to be the most utilized plant followed by herb (10), shrub (05), and grass (03) in descending order. However, rest of seven plant species showed very diverse habit as shown Table no 3 (Fig.3). The local traditional healers were using these plants to treat the various ailments and diseases viz. Abdominal pain, Abscess, Blisters, Acidity, Dysentery, Constipation, Scorpion bite, Arthritis, Asthma, Bleeding, High blood pressure, Boils, Bug repellent, Cholera, Conjunctivitis and other eye injury, Constipation, Cough, Cut and wound, Diabetes, Disturbed menstruation, Dysentery, Earache, Eczema, Fever, Gynecological disorder, Headache, Heart disease, Insect bites, Intestinal infections, Intestinal worms, Itching, Jaundice, Lactation inducer, Leg swellings, Leucorrhoea, Loose teeth and gum, mouth ulcers, pyorrhea and other dental care, Menstruation period, Nasal bleeding, Pimples, Renal calculi, Rheumatism and gout, Ringworm, Scabies, Skin disease, Skin infections including chicken pox, Snake bite, Stomach disorder, Urinary disorders, Increase lactation, To kill lice, Toothache, Ulcers, Weakness etc.

The observations of this study revealed that local traditional healers had very vast knowledge of dosage and frequency of ethno-medicines to be administered. They recommended dosage and frequency of ethno-medicines after observing physical condition of patient i.e. patient height, weight, age etc. and history of ailments. In most of the cases rural inhabitants employed their skill to measure the amount of ethno-medicine for preparation of herbal remedies. The period of treatment depended on nature and intensity of the diseases. This time period was few days to several days and in few cases till the complete rest from ailments. The most of the patient had full faith and satisfaction with the treatment given by rural inhabitants for cure the different ailments prevailing among remote villages of Datia district of Bundelkhand region, India (Itoo, 2007). The knowledge of ethno-medicinal plants used is mainly restricted to local traditional healers and it is very important to document this knowledge for future generation, otherwise it will vanish forever. Throughout the region there is an urgent need to support, safeguard and promote cultural and spiritual values of traditional medicines. Also, to test the scientific validity of the herbal preparation or drugs, clinical studies are required to be conducted. This can establish therapeutic properties of these preparations for safe and longer use. The indigenous knowledge and uses of herbal medicinal plants of a particular area have to be analyzed to develop appropriate management measures of *ex-situ* and *in-situ* conservation for best utilization of natural resources. Many developing countries have intensified their efforts in documenting the ethno-medicinal data on medicinal plants and research to find out scientific evidence for claims by tribal healers on Indian herbs has been intensified. Once these local ethno-medicinal preparations are scientifically evaluated and disseminated properly, people will be better informed regarding efficacious drug treatment and improved health status (Kumar *et al.*, 2013).

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