

RESEARCH ARTICLE

Ethnomedical knowledge of plants used by elderly learned and experienced knowledgeable persons in remote villages of Jhansi and Lalitpur districts of Bundelkhand region, India

■ RAJ KUMAR VERMA

SUMMARY

The present study deals with traditional knowledge regarding utilization of ethnomedicinal plants for treating various diseases and ailments was collected by direct interviewing elderly learned and experienced knowledgeable resource persons who have traditional knowledge about these ethnomedicinal plants in the remote villages of Jhansi and Lalitpur district of Bundelkhand, Central India. A total of 68 plant species in 64 genera and 36 families were used traditionally with various plant parts and their combination for the treatment of various ailments and diseases in the studied area. The highest number of ethnomedicinal plants was recorded in families Fabaceae having 12 plants species. Among all the plant habit, tree (25 plant species) was found to be the most used plant habit. Methods of preparation fall into eight categories *viz.*, ash, infusion, decoction, extract, juice, paste, powder, and various fresh plant parts used directly. The flora of Jhansi and Lalitpur district of Bundelkhand region has immense pharmaceutical and commercial potential.

Key Words : Ethnomedicinal plants, Human ailments, Diseases, Traditional knowledge

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From time immemorial, man has been dependent on nature for survival. This dependency led the aboriginal people living in harmony with nature to evolve a unique system of knowledge about plant wealth by trial and error methods. Traditionally, this treasure of knowledge has been passed on orally from generation to generation without any written document (Perumal and

Ignacimuthu, 1998 and 2000) and is still retained by various indigenous groups around the world.

India is one of the twelve mega-biodiversity countries of the world having rich vegetation with a wide variety of plants with medicinal value. 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 a rich knowledge of traditional medicine (John, 1984; Pushpangadan and Atal, 1984; Anuradha *et*

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al., 1986; Harsha *et al.*, 2002 and Parinitha *et al.*, 2005). Even today, indigenous and certain local communities practice herbal medicine to cure a variety of diseases, with plants particularly used as folk medicine to treat various ailments and diseases (Siddiqui and Husain, 1990).

Globally, about 85 per cent of the traditional medicines used for primary healthcare are derived from plants (Farnsworth, 1988). Traditional medicine and ethnobotanical information play an important role in scientific research, particularly when the literature and field work data have been properly evaluated (Awadh *et al.*, 2004). In many countries, scientific investigations of medicinal plants have been initiated because of their contribution to health care.

In remote villages of Jhansi and Lalitpur districts of Bundelkhand, traditional medicines are of great importance in the primary healthcare of indigenous people due to their strong faith on these systems and upto some extent the lack of sufficient and reliable health facilities and modern medicines. The local plant resources are the principal source of medicine and are used by the elderly learned and experienced knowledgeable resource persons. The objective of this study was :

- To evaluate the richness of ethnomedicinal plant species used by elderly learned and experienced knowledgeable resource persons in remote villages of Jhansi and Lalitpur districts of Bundelkhand.

- To document the ethnomedicinal knowledge of plant species used by elderly learned and experienced knowledgeable resource persons in remote villages of Jhansi and Lalitpur districts of Bundelkhand.

MATERIAL AND METHODS

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 (Fig.A). 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

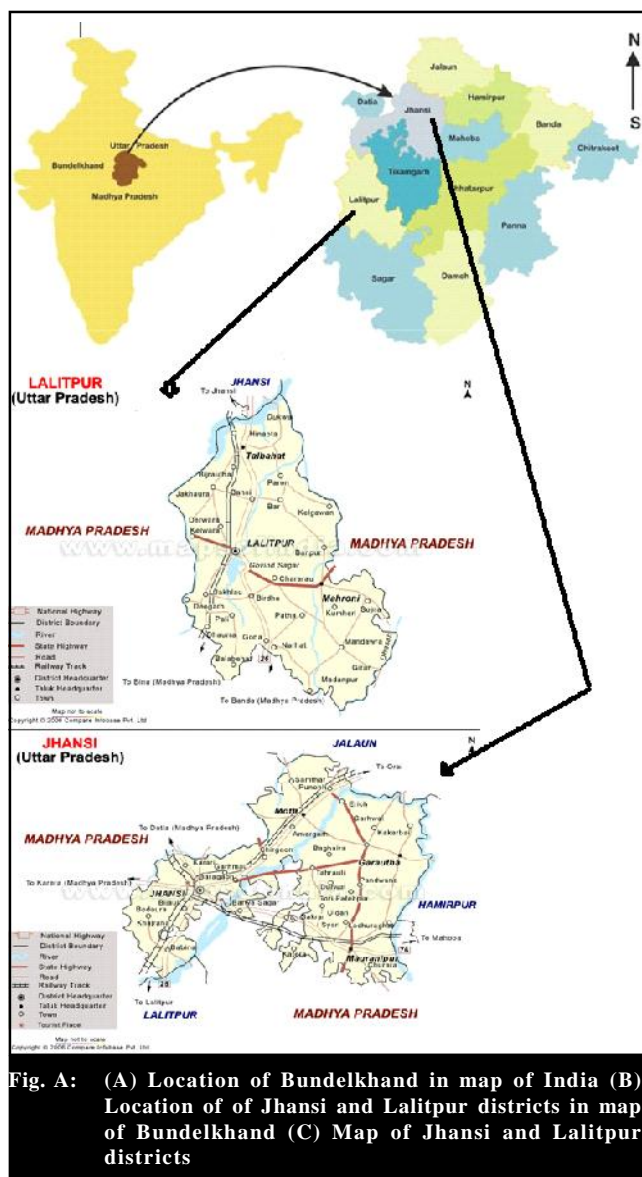


Fig. A: (A) Location of Bundelkhand in map of India (B) Location of of Jhansi and Lalitpur districts in map of Bundelkhand (C) Map of Jhansi and Lalitpur districts

in the north, escarpred 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 km² and supports 12.45 million human populations as per 1991 census (Tyagi, 1997).

Methods of informants and data collection :

The remote villages of Jhansi and Lalitpur district were regularly visited from July 2014 to June 2015. Following the method of Jain and Goel (1995), the information regarding the usage of medicinal plants available in the local area for treating various ailments and diseases, was collected by directly interviewing elderly learned and experienced knowledgeable resource

persons who have traditional knowledge about these medicinal plants in the remote villages of surveyed districts. Questionnaire surveys, participatory observations and field visits were planned to elicit information on the uses of various plants. The plant material was collected and carefully handled for identification by authenticated source. Making herbaria preserved most of the plant materials and all the specimen vouchers were carefully numbered and deposited. The ethnomedicinal value of each plant was enumerated in the following pattern: Botanical name/ Family, Local Name, Parts used and Mode of administration. The identification of plants was done using the following references:

- Forest Flora for Pilibhit, Oudh, Gorakhpur and Bundelkhand by Kanjilal (1982)
- Flora of British India by Hooker (1875)
- Silviculture of Indian trees by Troup (1921)
- Indian medicinal plants by Kirtikar and Basu (1999)

RESULTS AND DISCUSSION

The results of the study are presented in Table 1. The plants are arranged in alphabetical order. For each species botanical name, family, local name, parts used, methods of preparation, mode of administration and ailments treated are provided. The results of present study exhibit that inhabitants of remote villages in Jhansi and Lalitpur districts of Bundelkhand region used a number of plants species as ethnomedicinal plants for the treatment of various ailments and diseases. A total of 68 plant species in 64 genera and 36 families were used traditionally with various plant parts and their combination for the treatment of various ailments and diseases in the studied area.

The rural elderly learned and knowledgeable resource persons were using these plants to treat number of ailments and diseases like arthritis, asthma, bleeding, blemishness, boils, bronchitis, cold and cough, contraceptive use, cramps of children, cuts and wounds, diabetes, diarrhoea, dog bite, dysentery, early maturation of boils, eczema, fever, filariasis, genital diseases, gonorrhoea, gum infection and dental care, gum swelling, insomnia, irregular menstruation, leucorrhoea, loose bowels, headache, malarial fever, mouth ulcers, pimples, purgative, pyorrhoea, rheumatism, ringworm, lesions, scabies, snakebite, sore throat, spermatorrhoea, stomach worm, stomachache and expel hook worm, stone of kidney, to prevent miscarriage, to squeeze all the pus

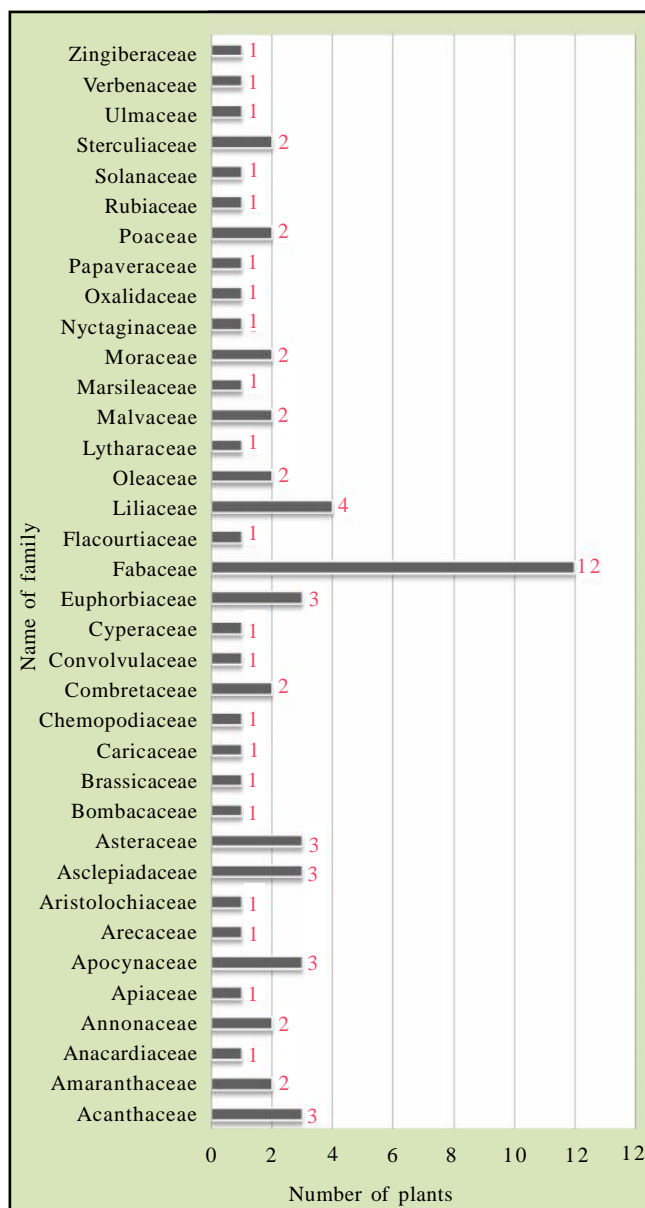


Fig. 1: Representation of the families and plants studied at study site

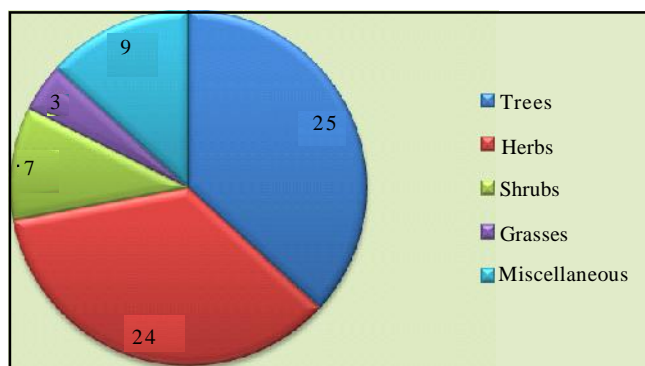


Fig. 2: Life form of plant species used for treatment of various diseases

Table 1: Plants with local name, habit, formulations and parts used in medicine by the traditional herbal healers and rural people of Jhansi and Lalitpur Districts, Bundelkhand region, India

Botanical name (Family)	Local name	Habit	Plant part used /Formulation	Disease
<i>Abelmoschus esculentus</i> (L.) Moench. (Malvaceae)	Bhindi	Erect herb	Root/powder with milk	Tuberculosis
<i>Abutilon indicum</i> (L.) Sweet. (Malvaceae)	Kanghi	Annual herb or under shrub	Whole plant	Gonorrhoea
<i>Acacia catechu</i> (L.F.) Willd. (Fabaceae)	Khair	Tree	Root/ paste	Rheumatism
<i>Acacia farnesiana</i> (L.)Willd. (Fabaceae)	Vilayati Kikar	Tree	Stem bark crushed	Applied at dog bite
<i>Acacia nilotica</i> (Linn.) Willd. Ex Del. (Fabaceae)	Kikar babool	Tree	Bark/decoction	Cough
<i>Achyranthes aspera</i> Linn. (Amaranthaceae)	Chirchita	An erect herb	Whole/plant ash	Asthma
<i>Adhatoda vasica</i> Nees. (Acanthaceae)	Adusa	Gregarious shrub or sub herbaceous bush	Leaf / decoction	Cough and cold
			Flower/ ash with honey	Whooping cough
			Leaf and root/ extract	Chronic bronchitis
<i>Ageratum conyzoides</i> Linn. (Asteraceae)	Lukhadia	Herb	Whole plant/infusion	Purgative
<i>Albizia lebeck</i> (L.) Benth. (Fabaceae)	Siris	Tree	Leaves/decoction	Arthritis
<i>Allium cepa</i> Linn. (Liliaceae)	Piyaz	Herb	Bulb/ extract with sugar candy	Stone of kidney
			Bulb/ roasted	Diarrhoea and cold
<i>Allium sativum</i> Linn. (Liliaceae)	Lahsun	Herb	Bulb/ raw	Filariasis
<i>Aloe barbadensis</i> Mill. (Liliaceae)	Gwarpatha	Herb	Leaves/ pulp	Scabies and boils
<i>Alstonia scholaris</i> (L.) R. Br. (Apocynaceae)	Saptarni	Evergreen tree	Leaves/decoction	Sore throat
<i>Amaranthus spinosus</i> Linn. (Amaranthaceae)	Choulai	Spinous herb	Root/ extract	Eczema
<i>Andrographis paniculata</i> (Burm f.) Wall. (Acanthaceae)	Kalmegh	Herb	Whole plant/decoction	Snakebite
<i>Anogeissus pendula</i> Edge. (Combretaceae)	Kardhai	Tree	Bark /decoction	Dysentery
<i>Annona squamosa</i> L. (Annonaceae)	Sharifa	Small tree	Fresh leaf/ slightly paste	Early maturation of boils
<i>Anthocephalus cadamba</i> Miq. (Rubiaceae)	Kadam	Tree	Tender branches/ tooth brush	Gum infection and dental care
<i>Argemone mexicana</i> Linn. (Papaveraceae)	Satyanasi	Prickly herb	Root/ paste	To squeeze all the pus from boils
<i>Aristolochia indica</i> Linn. (Aristolochiaceae)	Isvarmul	A slender perennial shrubby twiner	Leaf/ juice with black pepper	Malarial fever
<i>Asparagus racemosus</i> Willd. (Liliaceae)	Satavari	Scandent or Scrambling shrub or under shrub or climbing Shrub	Tuber/ juice	Diarrhoea and dysentery
<i>Bambusa arundinacea</i> (Retz.) Willd. (Poaceae)	Bans	Woody grass	Tender stem/ in crushed form with jiggery	Irregular menstruation
<i>Bauhinia variegata</i> Linn. (Fabaceae)	Kachnar	Tree	Leaves, buds and flowers/ cooked form	Dysentery
<i>Blumea lacera</i> (Burm. F.) DC. (Asteraceae)	Kukaronda	Herb	Leaf/ extract	Cramps of children
<i>Boerhaavia diffusa</i> Linn. (Nyctaginaceae)	Patterchata	Creeping Herb	Root/ extract with black pepper	Spermatorrhoea
<i>Bombax cieba</i> Linn. (Bombacaceae)	Semal	Tree	Calyx and corolla / cooked	As contraceptive use
<i>Calotropis procera</i> (Ait.) Ait. f. (Asclepiadaceae)	Akaua	Shrub or under Shrub	Young leaf/ paste with Jaggery	Stomach pain
<i>Carica papaya</i> Linn. (Caricaceae)	Papita	Small tree	Latex/ raw	Gum swelling

Table 1 : Contd.....

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<i>Cassia fistula</i> Linn. (Fabaceae)	Kawa	Tree	Leaf /paste Flower / raw	Ringworm lesions Stomachache and expel hook worm
<i>Cassia tora</i> Linn. (Fabaceae)	Panwar	Herb	Leaves/ juice with lemon juice externally	Blemishness
<i>Chenopodium album</i> Linn. (Chenopodiaceae)	Bathua	Herb	Seeds/powder	Swollen gums
<i>Clitoria ternatea</i> Linn. (Fabaceae)	Aparajita	Perennial herb	Fresh leaves/ paste with pepper black	Tuberculosis
<i>Curcuma domestica</i> Valet. (Zingiberaceae)	Haldi	Perennial rhizomatous herb	Rhizome/ extract	Jaundice
<i>Cynodon dactylon</i> Pers. (Poaceae)	Doorva	Grass	Root/Infusion	To stop bleeding from piles
<i>Cyperus rotundus</i> Linn. (Cyperaceae)	Nagarmotha	Grass	Rhizome/powder with black pepper, camphor, alum and cow milk	Snake bite
<i>Daucus carota</i> Linn. (Apiaceae)	Gajar	Annual herb	Fasciculate root /extract	Irregular menstruation
<i>Eclipta alba</i> (L.) Hassk. (Asteraceae)	Bhringraj	Herb	Whole plant/ paste	Jaundice
<i>Euphorbia hirta</i> Linn. (Euphorbiaceae)	Doodhi	Herb	Whole plant/decoction	Asthma
<i>Evolvulus alsinoides</i> Linn. (Convolvulaceae)	Shankhvati	Herb	Whole plant/decoction	Dysentery
<i>Ficus benghalensis</i> Linn. (Moraceae)	Bar	Tree	Tree latex/ crude	Boils and pimples
<i>Ficus racemosa</i> Linn. (Moraceae)	Gular	Tree	Fruits/ raw	Leucorrhoea
<i>Flacourtia indica</i> (Burm.f.) Merr. (Flacourtiaceae)	Kankar	Thorny Shrub or small tree	Leaf and fruits/ paste of both	Genital disease
<i>Gymnema sylvestre</i> R.Br. (Asclepiadaceae)	Gurmar	Large woody climber	Leaf powder	Diabetes
<i>Helicteres isora</i> Linn. (Sterculiaceae)	Morod phali	A large tree or small tree	Root/paste	Stomachache
<i>Hemidesmus indicus</i> (L.) R. Br. (Asclepiadaceae)	Anant mool	A perennial twining or prostrate, wiry shrubs	Root/decoction	Snakebite
<i>Holoptelea integifolia</i> (Roxb.)Planch. (Ulmaceae)	Chirola	Tree	Young leaves/ paste	Boils
<i>Jasminum officinale</i> Linn. (Oleaceae)	Chameli	A large sub erect twining Shrubs	Fresh leaves/ chewed	Mouth ulcers
<i>Jatropha gossypifolia</i> Linn. (Euphorbiaceae)	Ramsita	Shrub or under Shrub	Petiole/latex	Pyorrhoea
<i>Lanea coromandelica</i> (Houltt.) Merr. (Anacardiaceae)	Gunjja	Tree	Bark/ juice	Cuts and wounds
<i>Lantana camara</i> Roxb. (Verbenaceae)	Jarain	A large Scrambling evergreen shrubs	Root/root	Stomachache
<i>Lawsonia inermis</i> Linn. (Lytharaceae)	Mehandi	Shrub	Bark/ chewed and kept in between teeth	Toothache
<i>Marsilea minuta</i> Linn. Marsileaceae	Chatushpatri	A creeping herb	Leaves / cooked with rice	Insomnia
<i>Mimosa pudica</i> L. (Fabaceae)	Chuimui	Sub shrub or herb	Whole plant/ decoction	Bleeding
<i>Mucuna pruriens</i> (L.) DC. (Fabaceae)	Kaunch	An annual, climbing shrub with long vines	Seed/ decoction	Irregular menstruation
<i>Nyctanthes arbor-tristis</i> Linn. (Oleaceae)	Harssingar	Tree small	Leaves / decoction	Fever
<i>Oxalis corniculata</i> Linn. (Oxalidaceae)	Khattibuti	Creeping annual herb	Fresh leaves/raw	Chronic dysentery
<i>Phoenix sylvestris</i> Linn. Arecaceae	Khajoor	Tree	Kernel/ juice	Stomach worm

Table 1 : Contd.....

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<i>Phyllanthus fraternus</i> Webster. (Euphorbiaceae)	Bhuiamala	Herb	Whole plant/ paste	Jaundice
<i>Polyalthia longifolia</i> (Sonn.) Thw. (Annonaceae)	Ashoka	Tree	Stem bark or powder with butter	Gonorrhoea
<i>Pongamia pinnata</i> (L.) Merr. (Fabaceae)	Kanji	Tree	Leaf/decoction	Rheumatic joints
<i>Peristrophe bicalyculata</i> (Retz.) Nees. (Acanthaceae)	Atrilal/Adhedi	A laxy paniculate spreading hispid herb	Whole plant/ Macerated in an infusion on rice	Snakebite
<i>Raphanus sativus</i> Linn. (Brassicaceae)	Muli	Herb	Seed / powder	Irregular menstruation
<i>Rauwolfia serpentina</i> Linn. (Apocynaceae)	Sarpgandha	Herb or under shrub	Fresh root/Juice	Stomachache and Snakebite
<i>Saraca asoca</i> (Roxb.) De. wilde. (Fabaceae)	Ashok	Tree	Flower buds / raw	To prevent miscarriage
<i>Sterculia urens</i> Roxb. (Sterculiaceae)	Kooloo	Tree	Gum/Internally	Diarrhoea
<i>Terminalia bellerica</i> (Gaertn.) Roxb. (Combretaceae)	Bahera	Tree	Fruit pulp/ munch	Loose bowels and headache
<i>Withania somnifera</i> (L.) Dunal. (Solanaceae)	Asganth	Under shrub	Root/ decoction	Spermatorrhoea
<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Apocynaceae)	Dudhi	Small tree	Stem bark/ decoction	Snakebite

from boils, to stop bleeding from piles, toothache, tuberculosis, whooping cough etc.

The different parts of these ethnomedicinal plants were used as medicine by the local rural elderly learned and knowledgeable resource persons for the treatment of different ailments and diseases. These plant parts were root, stem, leaf, flower or floral part, fruit, seed, bulb, tuber, tender branches and some time they used whole plant also. Methods of using these plants vary according to the nature of ailments and diseases. The methods of preparation fall into eight categories viz., Ash, infusion, decoction, extract, juice, paste, powder and various fresh plant parts used directly. The rural elderly learned and knowledgeable resource persons were used some common house hold products viz., alum, black pepper, camphor, honey, jaggery, lemon, milk, rice, sugar candy in order to prepare ethnomedicinal formulations.

The highest number of ethnomedicinal plants was recorded in families Fabaceae having 12 plants species. Family Liliaceae contributed 04 species while Acanthaceae, Apocyanaceae, Asclepiadaceae, Asteraceae, Euphorbiaceae were the families, each of which found to have 03 plant species. Two plant species were reported in 08 families namely Amaranthaceae, Annonaceae, Combretaceae, Oleaceae, Malvaceae, Moraceae, Poaceae, Sterculiaceae. Rest of the reported 21 families contributes only one species each (Table 2

and Fig. 1).

Among all the plant habit, tree (25 plant species) was found to be the most used plant habit followed by herb (24 plant species), shrub (07 plant species) and grass (03 plant species) while nine species exhibited diverse habit in present as presented in Table 3 and Fig. 2.

The present study indicated that, the studied districts of Bundelkhand region have plenty of medicinal plants to treat a wide spectrum of human ailments. Earlier studies on traditional medicinal plants also revealed that the rural people of Bundelkhand region prefer folk medicine due to low cost and sometimes it is a part of their social life and culture (Saxena and Tripathi; 1989 and 1990; Bhalla *et al.*, 1996; Khanna *et al.*, 1996; Dubey *et al.*, 2001; Nigam and Kumar, 2005; Thakur *et al.*, 2008 and Verma *et al.*, 2008a and b). It is evident from the interviews conducted in different villages that the knowledge of ethnomedicinal plants is limited to traditional healers, herbalists and elderly persons who are living in rural areas. This study also points out that certain species of medicinal plants are being exploited by the local residents who are unaware of the importance medicinal plants in the ecosystem. There is a possibility of losing this wealth of knowledge in the near future due to lack of interest among the younger generation as well as their tendency to migrate to cities for lucrative jobs. It thus becomes necessary to acquire and preserve this

Table 2 : Representation of the families and plants studied at study site			
Sr. No.	Family	Name of plant species	No. of plant
1.	Acanthaceae	<i>Adhatoda vasica</i> Nees. <i>Andrographis paniculata</i> (Burm f.) Wall. <i>Peristrophe bicalyculata</i> (Retz.) Nees.	03
2.	Amaranthaceae	<i>Achyranthes aspera</i> Linn. <i>Amaranthus spinosus</i> Linn.	02
3.	Anacardiaceae	<i>Lannea coromandelica</i> (Houltt.) Merr.	01
4.	Annonaceae	<i>Annona squamosa</i> L. <i>Polyalthia longifolia</i> (Sonn.) Thw.	02
5.	Apiaceae	<i>Daucus carota</i> Linn.	01
6.	Apocynaceae	<i>Wrightia tinctoria</i> (Roxb.) R. Br. <i>Alstonia scholaris</i> (L.) R. Br. <i>Rauvolfia serpentina</i> Linn.	03
7.	Arecaceae	<i>Phoenix sylvestris</i> Linn.	01
8.	Aristolochiaceae	<i>Aristolochia indica</i> Linn.	01
9.	Asclepiadaceae	<i>Calotropis procera</i> (Ait.) Ait. f. <i>Gymnema sylvestre</i> R.Br. <i>Hemidesmus indicus</i> (L.) R. Br.	03
10.	Asteraceae	<i>Ageratum conyzoides</i> Linn. <i>Blumea lacera</i> (Burm. F.) DC. <i>Eclipta alba</i> (L.) Hassk.	03
11.	Bombacaceae	<i>Bombax cieba</i> Linn.	01
12.	Brassicaceae	<i>Raphanus sativus</i> Linn.	01
13.	Caricaceae	<i>Carica papaya</i> Linn.	01
14.	Chenopodiaceae	<i>Chenopodium album</i> Linn.	01
15.	Combretaceae	<i>Anogeissus pendula</i> Edge. <i>Terminalia bellerica</i> (Gaertn.) Roxb.	02
16.	Convolvulaceae	<i>Evolvulus alsinoides</i> Linn.	01
17.	Cyperaceae	<i>Cyperus rotundus</i> Linn.	01
18.	Euphorbiaceae	<i>Phyllanthus fraternus</i> Webster. <i>Euphorbia hirta</i> Linn. <i>Jatropha gossypifolia</i> Linn.	03
19.	Fabaceae	<i>Acacia catechu</i> (L.F.) Willd. <i>Acacia farnesiana</i> (L.)Willd. <i>Acacia nilotica</i> (Linn.) Willd. Ex Del. <i>Albizia lebbeck</i> (L.) Benth. <i>Bauhinia variegata</i> Linn. <i>Cassia fistula</i> Linn. <i>Cassia tora</i> Linn. <i>Clitoria ternatea</i> Linn. <i>Mimosa pudica</i> L. <i>Mucuna pruriens</i> (L.) DC <i>Pongamia pinnata</i> (L.) Merr. <i>Saraca asoca</i> (Roxb.) De. Wilde.	12

Table 2 : Contd.....

Table 2 : Contd.....

20.	Flacourtiaceae	<i>Flacourtia indica</i> (Burm.f.) Merr.	01
21.	Liliaceae	<i>Allium cepa</i> Linn. <i>Allium sativum</i> Linn. <i>Aloe barbadensis</i> Mill. <i>Asparagus racemosus</i> willd.	04
22.	Oleaceae	<i>Nyctanthes arbor-tristis</i> Linn. <i>Jasminum officinale</i> Linn.	02
23.	Lytharaceae	<i>Lawsonia inermis</i> Linn.	01
24.	Malvaceae	<i>Abutilon indicum</i> (L.) Sweet. <i>Abelmoschus esculentus</i> (L.) Moench.	02
25.	Marsileaceae	<i>Marsilea minuta</i> Linn.	01
26.	Moraceae	<i>Ficus benghalensis</i> Linn. <i>Ficus racemosa</i> Linn.	02
27.	Nyctaginaceae	<i>Boerhaavia diffusa</i> Linn.	01
28.	Oxalidaceae	<i>Oxalis corniculata</i> Linn.	01
29.	Papaveraceae	<i>Argemone mexicana</i> Linn.	01
30.	Poaceae	<i>Bambusa arundinacea</i> (Retz.) Willd., <i>Cynodon dactylon</i> Pers.	02
31.	Rubiaceae	<i>Anthocephalus cadamba</i> Miq.	01
32.	Solanaceae	<i>Withania somnifera</i> (L.) Dunal.	01
33.	Sterculiaceae	<i>Helicteres isora</i> Linn. <i>Sterculia urens</i> Roxb.	02
34.	Ulmaceae	<i>Holoptelea integifolia</i> (Roxb.) Planch.	01
35.	Verbenaceae	<i>Lantana camara</i> Roxb.	01
36.	Zingiberaceae	<i>Curcuma domestica</i> Valetton.	01

Table 3 : Life forms of plant species used for treatment of various diseases

Sr.No.	Habit	Plant species	No.
1.	Trees	<i>Acacia catechu</i> , <i>Acacia farnesiana</i> , <i>Acacia nilotica</i> , <i>Albizia lebbek</i> , <i>Alstonia scholaris</i> , <i>Annona squamosa</i> , <i>Anogeissus pendula</i> , <i>Anthocephalus cadamba</i> , <i>Bauhinia variegata</i> , <i>Bombax cieba</i> , <i>Carica papaya</i> , <i>Cassia fistula</i> , <i>Ficus benghalensis</i> , <i>Ficus racemosa</i> , <i>Helicteres isora</i> , <i>Holoptelea integifolia</i> , <i>Lannea coromandelica</i> , <i>Nyctanthes arbor-tristis</i> , <i>Phoenix sylvestris</i> , <i>Polyalthia longifolia</i> , <i>Pongamia pinnata</i> , <i>Saraca asoca</i> , <i>Sterculia urens</i> , <i>Terminalia bellerica</i> , <i>Wrightia tinctoria</i>	25
2.	Herbs	<i>Abelmoschus esculentus</i> , <i>Achyranthes aspera</i> , <i>Ageratum conyzoides</i> , <i>Allium cepa</i> , <i>Allium sativum</i> , <i>Aloe barbadensis</i> , <i>Amaranthus spinosus</i> , <i>Andrographis paniculata</i> , <i>Argemone Mexicana</i> , <i>Blumea lacera</i> , <i>Boerhaavia diffusa</i> , <i>Cassia tora</i> , <i>Chenopodium album</i> , <i>Clitoria ternatea</i> , <i>Curcuma domestica</i> , <i>Daucus carota</i> , <i>Eclipta alba</i> , <i>Euphorbia hirta</i> , <i>Evolvulus alsinoides</i> , <i>Marsilea minuta</i> , <i>Oxalis corniculata</i> , <i>Peristrophe bicalyculata</i> , <i>Phyllanthus fraternus</i> , <i>Raphanus sativus</i>	24
3.	Shrubs	<i>Mucuna pruriens</i> , <i>Hemidesmus indicus</i> , <i>Lawsonia inermis</i> , <i>Asparagus racemosus</i> , <i>Aristolochia indica</i> , <i>Lantana camara</i> , <i>Jasminum officinale</i>	07
4.	Grasses	<i>Bambusa arundinacea</i> , <i>Cynodon dactylon</i> , <i>Cyperus rotundus</i>	03
5.	Miscellaneous		
	Climber woody	<i>Gymnema sylvestre</i>	01
	Herb or under shrub	<i>Abutilon indicum</i>	01
	Herb or under shrub	<i>Rauwolfia serpentina</i>	01
	Shrub or small tree	<i>Flacortia indica</i>	01
	Shrub or sub herbaceous bush	<i>Adhatoda vasica</i>	01
	Shrub or under shrub	<i>Calotropis procera</i>	01
	Shrub or under shrub	<i>Jatropha gossypifolia</i>	01
	Sub shrub or herb	<i>Mimosa pudica</i>	01
	Under shrub	<i>Withania somnifera</i>	01

traditional system of medicine by proper documentation and identification of specimens (Chellaiah *et al.*, 2006).

India should focus on agrotechnology, process technology, standardization, quality control, research and development of herbal drugs. Now, the time has come to compile and document available knowledge on our valuable plant resources and to prove their utility scientifically through detailed phytochemical, biological and pharmacological investigations at selected centre in different regions of the country. India should adopt organized cultivation of medicinal plants that have export potential and import substitutions. Efforts should be made to cultivate potential medicinal plants as field crops. Their conservation should be done in appropriate ecological conditions. In order to push India as a significant player in the global herbal product market, herbal products should be standardized as per WHO guidelines (Dubey *et al.*, 2004).

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