



Assessment of knowledge of medicinal plants and their use in tribal region of Jashpur district of Chhattisgarh, India

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Abstract The present study was conducted to assess the knowledge of medicinal plants and their use in tribal region of Jashpur district of Chhattisgarh. Under the socio-economic profile, farmers of middle age (36-55 yrs) people showed the maximum percentage (78%) distribution and frequency, 50 per cent of respondents belonged to primary to middle school level of education and 63 per cent of respondents were having medium size of family (5 to 8 members). A total number of 50 medicinal plant species belonging to 29 families were recorded, in which Euphorbiaceae registered as the largest family with 4 plant species (8%). Shrub showed their maximum presence (34%) followed by tree (32%), herb (20%) and climber (14%). As per knowledge of respondents about medicinal plants Haldi and Bhui-neem is mostly use as medicinal purpose as 5.2% (n=40) followed by Harra, Munga, Karanj and Hadjod (3.9% each). This information through respondent (tribals) showed very diverse nature of medicinal flora, their usage in healing purpose with socioeconomic/ living standard upliftment. Therefore, it is needful aspect of conserving these biological resources for sustainable ecosystem.

Keywords: Biological resource, Ecosystem flora, Medicinal plants

INTRODUCTION

Medicinal plants play an important role in supporting health care system in India. According to WHO estimate, 80% of population in developing countries relies on traditional medicine (Bhandary and Chandrashekhar, 2002). In India with more than 75% of the population residing in rural areas (Anonymous, 1991) close to the natural resources, have rich traditions of utilizing medicinal plants existed among indigenous peoples for ages. Approximately 3000 plants species are known to have medicinal properties in India (Prakasha *et al.*, 2010). It is estimated that 40% of the world populations depends directly on plant based medicine for their health care (WHO, 2003).

India is a rich diversity centre of medicinal and aromatic plants. Around 45,000 plant species nearly 15,000 plant species are used for their specific medicinal value that shows the remarkable diverse nature of plant species. Documentation is needful aspect for sustain utilization and conservation of medicinal plants (Patel, 2012). According to Raj and Toppo, (2014), plant diversity assessment and documentation are the first step ahead before the next step of conservation of these biological resources. Assessments of this diverse composition with knowledge about their medicinal properties are very

essential for survival of tribal areas people, still live with much dependence on plants. Chhattisgarh is rich in forest resources; about 44% of the total area of the state is under forest cover. Sal, teak, bamboo, saja etc are major woody perennial tree species found in large number. Among these woody perennial tree species herb and shrub plants are also diversified. Jashpur is one such area in Chhattisgarh, where tribal people live with nature in total harmony. They know the importance of plants and forests for their survival, hence practicing sustainable use of plant resource. This study was conducted to document the medicinal plants with their knowledge uses among the different tribal communities of Jashpur district of Chhattisgarh.

MATERIALS AND METHODS

The present study was conducted during 2013-2014 in the Jashpur district of Chhattisgarh state (northern corner) and lies in the between 17°46" - 24°8" N latitude and 80°15" - 84°24" E longitude. The upper ghat is an extension plateau covering 1384 sq. Km. Which is about 1200 m above sea level and is covered with the dense forest. The climate of the area is tropical and annual rainfall is 1885.1 mm. The total forest area of Jashpur is 2752.28 sq. km. which constitutes 51.54% of the total area of the district.

District was selected purposively, because Jashpur district is mostly dominated by the tribal's people and

maximum area covered by forest. Here people use medical plants as traditional knowledge. Two blocks namely Bagicha and Pharsabaha from district and two villages from each block were selected at randomly. Ten tribal peoples who are different community groups (Kanwar, Oraon, Korva, Gond) from each village were taken randomly, thus a total of forty tribal people as respondent were included in the study sample.

Key informants were identified after preliminary discussion with the people. Information on ethnobotanical uses of the plants was collected by interviewing key informants of the community using a questionnaire having questions related to socio-profile viz., name of village, name of informants, age of informants, cast, education and questions about medicinal plants viz. local name, habit, use of plant, part used *etc.* The species were observed and identified with the help of local of villages and tribals people. The confirmation of the species is carried out with the help of flora of Chhattisgarh and Madhya Pradesh and other related literature (Hooker's, 1875; Sharma, 2003; De, 2005; Pullaiah, 2006; Trivedi, 2006). Finally, plants were documented by following their botanical name, habits, local name, parts use and uses of the individual plants.

RESULTS AND DISCUSSION

Socio-economic profile of respondents: Jashpur district of Chhattisgarh is mainly inhabited by different tribal communities whose main occupation is agriculture and collection of forest products. The socio economic data of the proposed study will be useful for the Government and non- Government bodies for the improvement of the condition of the tribals in Jashpur.

Age of respondents : In respect to age of respondents, data compiled in table 1 shows that majority (78.00%) of respondents belongs to middle age group (36 to 55 years), followed by 12 per cent respondents belongs to young age group (up to 35 years), whereas 10 per cent respondents belongs to old age group (More than 55 years), the findings indicated that the majority of knowledge about medicinal plants in study area belonged to middle age groups, followed by young age group. This reflected that young and old people had not much knowledge about medicinal plants.

Table 1. Distribution of respondents according to their age (n= 40).

S. N.	Age category	Frequency
1.	Young (up to 35 years)	5
2.	Middle (36 to 55 years)	31
3.	Old (More than 55 years)	4
Total		40

Education level of respondents: Regarding education level of respondents, table 2 depicts that about 50 per cent of respondents belongs primary to middle school education level, followed by 18 per cent of respondents found high school level of education, 15 per cent of respondents gained higher secondary level of education, 12 per cent of respondents were illiterate and only 5 per cent of respondents gained college level of education.

Table 2. Distribution of respondents according to their education level (n=40).

S. N.	Education	Class	Frequency
1.	Illiterate	00	5
2.	Primary school	1 st to 5 th	11
3.	Middle school	6 th to 8 th	9
4.	High school	9 th to 10 th	7
5.	Higher Secondary	11 th to 12 th	6
6.	College	Graduate	2
Total			40

Family size of respondents: The data regarding family size (Table 3) indicated that 63 per cent of respondents were having medium size of family (5 to 8 members), followed by 27 per cent respondents had small family size (up to 4 members) and only 10 per cent of respondents had large size of family (Above 8 members).

Knowledge of respondents about medicinal plants: Knowledge of tribal/farmers about medicinal plants is often exclusive to the specific communities and linked to the local flora. 50 medicinal plant species with varied families (29) are recorded by assessment of tribal's knowledge and their medicinal usage comprising different habit viz., tree, shrubs, herbs, climber and tuber. This diversity shows the variability among flora and it is essential to get knowledge about the plant species for medicinal purposes. According to given table 4, Haldi and Bhui-neem is mostly using as medicinal purpose as 5.2% followed by Harra, Munga, Karanj and Hadjod (3.9% each). Ashwagandha, Ghratkumari, Bargad, Mahua, Bahera, Muli, Rohini,

Table 3. Distribution of respondents according to their size of family (n=40).

S.N.	Size of family	Frequency
1.	Small (up to 4 members)	11
2.	Medium (5 to 8 members)	25
3.	Large (Above 8 members)	4
Total		40

Table 4. Knowledge of respondents about medicinal plants.

Knowledge of plant	Family	Habit	Frequency	Percentage
Ashwagandha	Solanaceae	Shrub	1	1.3
Ghrit kumarai	Liliaceae	Shrub	2	2.6
Bael	Rutaceae	Tree	2	2.6
Bargad	Moraceae	Tree	1	1.3
Aam	Anacardiaceae	Tree	2	2.6
Mahua	Sapotaceae	Tree	1	1.3
Meda	Lauraceae	Tree	1	1.3
Harra	Combretaceae	Tree	3	3.9
Bahera	Combretaceae	Tree	1	1.3
Aonla	Euphorbiaceae	Tree	2	2.6
Munga	Moringaceae	Tree	3	3.9
Pakad	Moraceae	Tree	1	1.3
Kela (Banana)	Musaceae	Herb	2	2.6
Bhui-neem	Acanthaceae	Shrub	4	5.2
Amrud	Myrtaceae	Tree	2	2.6
Bariyari	Malvaceae	Shrub	1	1.3
Beng sag	Mackinlayaceae	Shrub	2	2.6
Karanj	Fabaceae	Tree	3	3.9
Shatavari	Liliaceae	Climber	1	1.3
Safed musli	Liliaceae	Shrub	1	1.3
Kachri	Zingiberaceae	Climber	1	1.3
Hadjod	Vitaceae	Climber	3	3.9
Minjur chundi	Asteraceae	Climber	1	1.3
Parhi	Menispermaceae	Climber	2	2.6
Sattar kowa (Sahtut)	Moraceae	Climber	1	1.3
Raksha	Acanthaceae	Herb	1	1.3
Aakand (aok)	Asclepiadaceae	Shrub	1	1.3
Tulsi	Labiatae	Shrub	2	2.6
Sapota	Sapotaceae	Tree	1	1.3
Gokul kata (satyanashi)	Papaveraceae	Shrub	1	1.3
Mirch	Solanaceae	Shrub	2	2.6
Haldi	Zingiberaceae	Herb	4	5.2
Muli	Brassicaceae	Herb	1	1.3
Rohini	Euphorbiaceae	Tree	1	1.3
Semal	Malvaceae	Tree	1	1.3

Contd...

Table 4. Contd...

Mustard	Brassicaceae	Shrub	1	1.3
Dub ghas	Gramineae	Herb	2	2.6
Chirchitti	Amaranthaceae	Herb	2	2.6
Sadabahar	Apocynaceae	Herb	1	1.3
Nimbu	Rutaceae	Herb	1	1.3
Jada	Euphorbiaceae	Shrub	1	1.3
Tikhur	Zingiberaceae	Shrub	1	1.3
Chhatiyani	Apocynaceae	Tree	1	1.3
Bhanwar malli	Oleaceae	Shrub	1	1.3
Motha	Gramineae	Herb	1	1.3
Bhuiamla	Euphorbiaceae	Shrub	1	1.3
Karonda	Apocynaceae.	Shrub	1	1.3
Kheera	Cucurbitaceae.	Climber	1	1.3
Lal bhaji	Amaranthaceae	Shrub	1	1.3
Dhatura	Solanaceae	Herb	1	1.3
Total			76	100

Table 5. Distribution of medicinal plants as per their habit.

S.N.	Habit	Number of plant species	Distribution (%)
1	Tree	16	32
2	Herb	10	20
3	Shrub	17	34
4	Climber	7	14
5	Total	50	100.00

Semal etc are comprises lowest use as medicinal purpose (1.3% each). As per habit of medicinal plant (Table 5) shrub are mostly seen as they cover a larger number (17 species of 34 %) followed by tree (16 species of 32%) and herb (10 species of 20%) but climber (7 species of 14%) are least among all. As per family wise distribution (Table 6) of medicinal plants, most frequent plant families were found in the order of Euphorbiaceae (4 species of 8%) > Moraceae, Liliaceae, Solanaceae, Zingiberaceae, Apocynaceae (each 3 species of 6%) > Rutaceae, Sapotaceae, Combretaceae, Acanthaceae, Malvaceae, Amaranthaceae, Brassicaceae, Gramineae (each 2 species of 4%) > Anacardiaceae, Lauraceae, Moringaceae, Musaceae, Myrtaceae, Mackinlayaceae, Fabaceae, Vitaceae, Asteraceae, Menispermaceae, Asclepiadaceae, Labiatae, Papaveraceae, Oleaceae, Cucurbitaceae (each 1 species of 2%).

Information about medicinal uses of plants (ethnobotany) by tribal people: In Jashpur the

tribal's are 65.37% of the total population. Oraon is one of the major populations amongst all the tribal's found in Jashpur (Tiwari *et al.*, 2014). Apart from health care, medicinal plants are mainly the alternate income generating source of underprivileged communities (Myers, 1991; Lacuna-Richman, 2002). Therefore, this sector helps to improve socio-economic with living standard of rural people/tribes. The details about usage of medicinal plants by tribes viz., Kanwar, Oraon, Korva and Gond with their botanical name, habit and economical usable plant parts are given below in Tables 7-10. As per assessment Kanwar tribe used maximum number (26) of floral species as medicinal purpose followed by Oraon tribe (19), Korva tribe (17) and Gond tribe (14). Haldi and Bhui-neem is mostly used by these four tribes as medicinal purpose.

Choudhary *et al.* (2011) has worked on ethnobotany focussing on four tribal communities i.e., Bhil, Bhilala, Gond and korva and reported a total of 29 species were used by them for remedies in M.P. A total of 89

Table 6. Medicinal plant species distribution on the basis of the families.

S.N.	Family	Number of species	Percentage distribution
1	Solanaceae	3	6.0
2	Liliaceae	3	6.0
3	Rutaceae	2	4.0
4	Moraceae	3	6.0
5	Anacardiaceae	1	2.0
6	Sapotaceae	2	4.0
7	Lauraceae	1	2.0
8	Combretaceae	2	4.0
9	Euphorbiaceae	4	8.0
10	Moringaceae	1	2.0
11	Musaceae	1	2.0
12	Acanthaceae	2	4.0
13	Myrtaceae	1	2.0
14	Malvaceae	2	4.0
15	Fabaceae	1	2.0
16	Mackinlayaceae	1	2.0
17	Zingiberaceae	3	6.0
18	Vitaceae	1	2.0
19	Asteraceae	1	2.0
20	Menispermaceae	1	2.0
21	Asclepiadaceae	1	2.0
22	Labiatae	1	2.0
23	Papaveraceae	1	2.0
24	Brassicaceae	2	4.0
25	Gramineae	2	4.0
26	Amaranthaceae	2	4.0
27	Apocynaceae	3	6.0
28	Oleaceae	1	2.0
29	Cucurbitaceae.	1	2.0
Total		50	100

species and 56 families were reported by Thakur *et al.* (2013) with two top families Asteraceae and Fabaceae which have been used as more medicinal plants. Shrivastava and Kanungo (2013) reported that a total 14 plant species were found to be used by Oraon tribes for ethnobotanical uses in Sarguja districts Mashih *et al.* (2013) reported 44 plant species representing 23

families to be in use among in Geetham block of Dantewada which support the present investigation.

Conclusion

The information through respondent (tribals) showed very diverse nature of medicinal flora, their usage in healing purpose with socio-economic/ living standard

Table 7: Details about usage of medicinal plants by Kanwar tribe.

Local name	Botanical name	Habit	Part use	Usage
Ashwagandha	<i>Withania somnifera</i>	Shrub	Leaf and root	fat control and enhance force
Ghritkumari	<i>Aloe vera</i>	Shrub	Leaf and thick rasp	Skin protection
Bael	<i>Aegle mormelos</i>	Tree	Fruit	Clean stomach
Bargad	<i>Ficus benghalensis</i>	Tree	Upper root	Weakness
Aam	<i>Mangifera indica</i>	Tree	Bark	syphilis, wounds and ulcers
Mahua	<i>Madhuca indica</i>	Tree	Root	Cooking and adulteration of Ghee
Meda	<i>Litsea monopetala</i>	Tree	Bark	Swelling
Harra	<i>Terminalia chebula</i>	Tree	Bark and fruit	Cough
Bahera	<i>Terminalia bellirica</i>	Tree	Fruits	Cough and digestive.
Munga	<i>Moringa oleifera</i>	Tree	Leaf/tuber	Blood pressure balance
Pakad	<i>Ficus infectoria</i>	Tree	Bark	Dysentery
Kela (kacha)	<i>Musa paradisiaca</i>	Herb	Fruit	Leprosy, fevers and hemorrhages
Bhui-neem	<i>Andrographis paniculata</i>	Herb	Whole part	Malaria fever
Amrud	<i>Psidium guajava</i>	Tree	Newly bud sap	Eye infection
Bariyari	<i>Sida acuta</i>	Shrub	Leaf pest	Ring worm
Beng sag, Brahmi buti	<i>Centella asiatica</i>	Shrub	Whole part	Increase hungriness
Karanj	<i>Pongamia pinnata</i>	Tree	Oil	Etching
Shatavari	<i>Asparagus racemosus</i>	Climber	Tuber	Enforcement of power
Safed musli	<i>Chlorophytum Borivilianum</i>	Shrub	Tuber	Sexual enforcement
Kachri	<i>Hedychium spicatum</i>	Climber	Tuber	Sexual enforcement
Hadjod	<i>Cissus quadrangular</i>	Climber	Leaf	Bone fracture
Minjur chundi	<i>Elephantopus scaber</i>	Climber	Leaf	Bone fracture
Parhi	<i>Cissampelos pareira</i>	Climber	Root	Anti poisonous
Sattar kowa (Sahtut)	<i>Morus alba</i>	Climber	Bark, root and fruit	Stomach pain
Raksha	<i>Strobilanthes heiniyanus</i>	Herb	Seed	Stomach pain of animal
Aakand (aok)	<i>Calotropis Gigantea</i>	Shrub	Leaves, root, bark, latex.	Fevers, rheumatism, indigestion

upliftment. Thus, the present study underlines the potential of the ethnobotanical research and the need for the documentation of traditional knowledge pertaining to medicinal plant utilizing by the respondent under studied and helpful in different ailments in short duration. The conservation of these resources along with domestication, multiplication, sustainable harvesting

is required for future generation and for ecological wellbeing.

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Table 8. Details about usage of medicinal plants by Oraon tribe.

Local name	Botanical name	Habit	Part use	Usage
Tulsi	<i>Mimosa pudica</i>	Shrub	Leaf	Cold and cough
Aam	<i>Mangifera indica</i>	Tree	Fruit juice	Syphilis, wounds, ulcers
Munga	<i>Moringa oleifera</i>	Tree	Root, leaf	High blood pressure
Sapota	<i>Manilkara zapota</i>	Tree	Leaf	anti-inflammatory
Satyanashi	<i>Argemone maxicana</i>	Shrub	Roots, leaves and juice.	Leprosy and skin-diseases
Beng sag, Brahmi buti	<i>Centella asiatica</i>	Shrub	Whole part	Increase hungriness
Harra	<i>Terminalia chebula</i>	Tree	Fruit	Cough
Mirch	<i>Capsicum annum</i>	Shrub	Root	Pain of teeth
Hadjod	<i>Cissus quadrangular</i>	Climber	Whole part	Bone fracture
Haldi	<i>Curcuma longa</i>	Herb	Rhizome	Body strain
Muli	<i>Raphanus sativus</i>	Herb	Leaf and tuber	Jaundice
Rohini	<i>Mallotus Philipinensis</i>	Tree	Bark	Pain relief
Parhi	<i>Cissampelos pareira</i>	Climber	Root	Fever
Bhui-neem	<i>Andrographis paniculata</i>	Herb	Leaf	Malaria treatment
Bhuiamla	<i>Phyllanthus niruri</i>	Shrub	Bark and root	Pain relief
Karonda	<i>Carissa carandas</i>	Shrub	Bark and root	Pain relief
Bael	<i>Aegle mormelos</i>	Tree	Leaf	Relief in head pain
Aonla	<i>Emblica officinalis</i>	Tree	Juice	Asthma and digestion problem
Karanj	<i>Pongamia Pinnata</i>	Tree	Seed and branch	Cough, piles, liver pain and skin irritation

Table 9. Detail about usage of medicinal plants by Korva tribe.

local name	Botanical name	Habit	Part use	Usage
Hadjod	<i>Cissus quadrangular</i>	Climber	Leaf	Bone fracture
Semal	<i>Bombax ceiba</i>	Tree	Gond	Dysentery
Karanj	<i>Pongamia Pinnata</i>	Tree	Oil	Itching
Mirch	<i>Capsicum annum</i>	Shrub	Root	Teeth pain
Bhui-neem	<i>Andrographis paniculata</i>	Herb	Rasp of plant	Malaria and purification of blood
Haldi	<i>Curcuma longa</i>	Herb	Tuber	Pain killer
Mustard	<i>Brassica compestris</i>	Shrub	Leaves,seeds	Antimicrobial, skin diseases and cold
Dub ghas	<i>Cynodon dactylon</i>	Herb	Whole part	Increase hungriness
Chirchitti	<i>Acaranthus aspera</i>	Herb	Bark	Pain killer
Aonla	<i>Emblica officinalis</i>	Tree	Root and leaf	Jaundice disease
Chhatiyay tree	<i>Alstonia Scholaris</i>	Tree	Bark and root	Breast/chest pain

Table 9. Cont.

Chhatiyan tree	<i>Alstonia Scholaris</i>	Tree	Bark and root	Breast/chest pain
Bhanwar malli	<i>Nyctanthes arbor-tristis</i>	Shrub	Tuber	Fever
Motha	<i>Cyperus rotundus</i>	Herb	Green grass	Ulcer
Kela (Kacha)	<i>Musa paradisiaca</i>	Herb	Leaves, roots, fruits	Diarrhea and haemostatic
Ghritkumari	<i>Aloe vera</i>	Shrub	Pulp	Fever and cold
Kheera	<i>Cucumis sativus</i>	Climber	Fruit	Cure to kidney stone
Kacha haldi	<i>Curcuma longa</i>	Herb	Tuber	Pain killer

Table 10: Detail about usage of medicinal plants by Gond tribe.

Local name	Botanical name	Habit	Part use	Usage
Sadabahar	<i>Catharanthus roseus</i>	Herb	Flower and leaf	Diarrhea (dast)
Dub ghas	<i>Cynodon dactylon</i>	Herb	21dub ghas+gud	Increase hungerness
Nimbu	<i>Citrus limonum</i>	Tree	Fruits, leaves, bark and roots	Antipyretic, cold and stomachic
Munga	<i>Moringa oleifera</i>	Tree	Plant water	High blood pressure
Amrud	<i>Psidium guajava</i>	Tree	Newly leaf	Stomach pain
Jada	<i>Ricinus communis</i>	Shrub	Leaf	Jaundice
Bhui-neem	<i>Andrographis paniculata</i>	Herb	Whole part	Malaria fever
Tulsi patta	<i>Ocimum sanctum</i>	Shrub	Leaf	Fever and cough
Tikhur	<i>Curcuma angustifolia</i>	Shrub	Tuber	Stomach problem
Haldi	<i>Curcuma longa</i>	Herb	Tuber	Ulcer and skin treatment
Lal bhaji	<i>Alternanthera spp.</i>	Shrub	Whole part	Women fertility and mouth ulcer
Harra	<i>Terminalia chebula</i>	Tree	Fruit	Cough
Dhatura	<i>Datura stramonium</i>	Herb	Leaf and juice	Anti dandruff
Chirchitti	<i>Achyranthus aspera</i>	Herb	Whole plant	Liver problem

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