

## Ethno-medicinal Plants of Sihawa, Chhattisgarh Used in Herbal and Folk Remedies in Indian System of Medicine

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### ABSTRACT

*Every plant has some use, but some plants are very important from the point of view of traditional medicinal utility. The main intent of the present study is to gather complete information about the diversity of medicinal plants found in Sihawa Gram Panchayat (GP) of the Dhamtari district. Sihawa GP has a hilly terrain, a wild enclosure that is suited to the diversity of medicinal plants. In this study, the medicinal plants found there are listed along with their scientific name, local name, family, habit, parts used, and related traditional knowledge as told by the local tribes living there. Total 71 medicinal plant species with 60 genera distributed among 38 families were identified, following taxonomic literature and standard methods. Fabaceae family registered as the largest family with 13 species (18%). The tree showed their maximum presence with 46% and followed by herb 25%, shrub 23%, and a minimum of 6% climbers (4 species). It is also found that in 21% of cases the plant part used was fruit and in 16% of cases, it was leaves. As data indicating there is extremely diverse flora of medicinal plants that need to be conserved with the help of local inhabiting tribes.*

**Keywords:** Chhattisgarh, Ethno-medicinal, Sihawa, Taxonomy, Traditional knowledge, Tribes.

### INTRODUCTION

Ethno-medicinal plants are those plants which are used as a traditional medicine according to the experience and perspective by some local groups or tribal community. These plants play a paramount role in human survival throughout the world. And they are a foremost source of medicine for the local community. India exhibits significant biodiversity as it has very diverse fauna and flora. It has 12 biogeographical provinces, 5 biomes, and 3

bioregions (Cox & Moore, 1993). The total floral diversity of the country is about 49,003 species including all the groups viz. flowering plants (Gymnosperm 81 species and Angiosperms; 18,532 species), non-flowering plants (Bryophyte; 2,754 species and Pteridophytes; 1,293 species), and other (Virus & Bacteria; 1,196 species, Algae; 7,396 species, Fungi; 15,223 species and Lichens; 2,528 species).

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(Singh et al., 2018) In India, about 8,000 medicinal plant species are used by different communities, tribes, and inhabitants in different parts of the country (De, 2019).

As per Census 2011, the total tribal population in the state Chhattisgarh is 7,822,902 including 3,873,191 males and 3,949,711 females. The main tribes of Chhattisgarh are Gond, Kavar, Oraon, Halba, Bhattra, Sawar, Korwa, Binijhwar, Bharia, Bhumia, and Nagesia. (Bisai et al., 2014) All these tribes traditionally use different parts of plants such as leaves, roots, stems, flowers, seeds, fruits, bark, seed oil, tubers, and even whole plants as a medicament for the treatment of disease in many ways. These plants include herb, shrub, tree, and vine. Thus this study was conducted to document the medicinal plants with their knowledge uses among the different tribal communities of the Sihawa Gram panchayat of Chhattisgarh.

## MATERIAL AND METHODS

### Area of Interest

Chhattisgarh, located in the east-central part of India. The state is profuse in forest and mineral resources as it has 55,870 km<sup>2</sup> forest cover that is 41.33 percent (3.08 percent dense forest, 25.92 percent moderate dense, 12.33 percent open forest, and 0.08 percent scrub) of the state's total geographical area (India state of forest report, 2009). Nature has gifted 3 national parks [Indravati (Kutru) National Park, Kanger Valley National Park, and Guru Ghasidas (Sanjay) National Park] and 11 wildlife sanctuaries to this state. In 2000 the state born with a 31.8% tribal population (census, 2011). During this study, the area of interest was Sihawa Gram panchayat (GP). The GP is situated in Nagri tehsil of Dhamtari district and is well known for 'the Mahendra-Giri' hills. And this place is the origin point of the 'Mahanadi' river. The river is a major river in East-Central India. As the Gram panchayat has enclaves of old hills, rivers, forests, etc. which gives space to many plants, including medicinal plants.

One of the aims of this study is to maintain and restore traditional knowledge of

primary traditional medication or tribal first aid practice used by the population inhabiting there.

### Methods

The present study was conducted in the year 2019. The GP was selected deliberately because Sihawa is mostly inhabited by the tribal people and as prescribed above, the copious area is under forest. Here people and 'vaidya' use plants as medicine using their traditional knowledge. Many times the concerned place was visited to collect information. Key informants were identified after preliminary discussion with the local people. Some people who have traditional knowledge of medicinal plants were selected to gather information and 'Murali Baba' is one of them. He collects medicinal plants from the hills of Sihawa and uses his knowledge to make a variety of medicines that are useful in the treatment of diseases of the villagers and nearby people.

Direct interviews were conducted and time was spent with those people to hoard information and also went to the forest to identify the plants in their wild habitat. The species were observed and identified one by one with the help of local villagers, tribal people, and selected informants. The confirmation of the species is carried out with the help of various literature and 'medicinal flora of Madhya Pradesh and Chhattisgarh' (Jitendra & Jain, et al., 2006) (Jain et al., 2006). In the end, plants were documented by following their botanical name, habits, local name, parts use, and traditional uses of the individual plants.

### Key Results

The present paper is focused on the ethno-medicinal utility of growing wild plants which was analyzed on the ground of data obtained through the local population. The results of this study are presented in Tables 1, 2, 3, and 4. In Table 1 plants are arranged in alphabetical order of their botanical names. For each species, the scientific name, local name, family, habit, parts used, and related traditional knowledge are presented. Botanical remedies in the Sihawa comprise 71 species belonging to 38 families (Figure 4, Table 2). The predominant botanical families were

Fabaceae (13 species-18%), Apocynaceae (4 species-6%), Rubiaceae, Acanthaceae, Phyllanthaceae, Moraceae, Lamiaceae, Combretaceae each with 3 species (4%) and Solanaceae, Malvaceae, Meliaceae, Asteraceae, Nyctaginaceae, Myrtaceae each with 2 species i.e. 3%. 64% of the plants belong to the above 14 families and the remaining 34 percent of the plants belong to 24 families, of which 24 plants have one each from each family (Figure 3).

According to the calculation made (Figure 1), among all plants used as ethno-medicine 46% plants were tree (33 species), 25% herbs (18 species), 23% shrubs (16 species), and 6% climbers (4 species). It was recorded that the following parts of the plant were useful in medicinal use. These are Fruit, Flower, Leaves, Root, Seed, Bark, Stem, Wood, Gum, and Latex.

The reckoning also showed that the most commonly used plant part was the fruit which was used in 21% of cases while leaves 16%, bark 12%, seed 11%, and root, whole plant, stem, flower, latex, Wood, Gum; 10%, 10%, 8%, 4%, 2% 1% respectively (Figure 2). Medicinal use of analyzed plants is presented in Table 1, which gives an idea that these plants are used to heal many diseases from minor illnesses to some severe illnesses. Table 2 presents the family names and the number of species related to them, while Table 3 presents the types of plants (habit) and Table 4 presents useful plant parts and related species numbers.

Pictures of plants were also clicked in their natural habitat and some of these are presented in Plate 1.

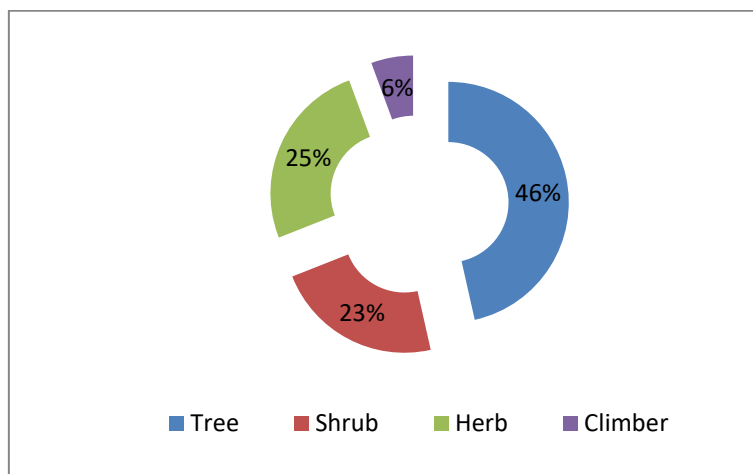


Figure 1: Plant habit; tree-46%, herb-25%, shrub-23% and climber-6%

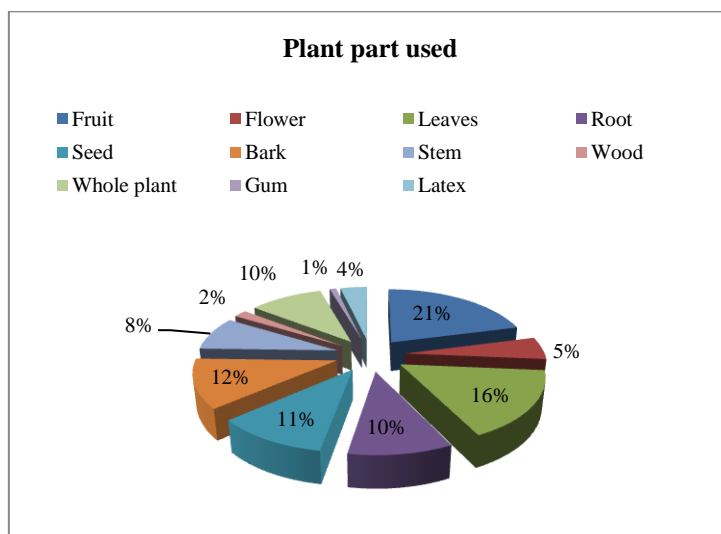


Figure 2: Plant part used as Medicine



Figure 3: 64% plant species are covered by 14 families and remaining 24 families cover only 34% species of medicinal plants

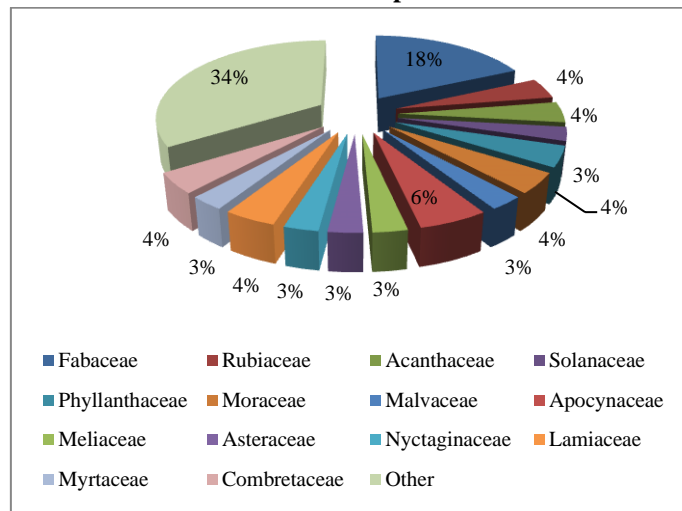
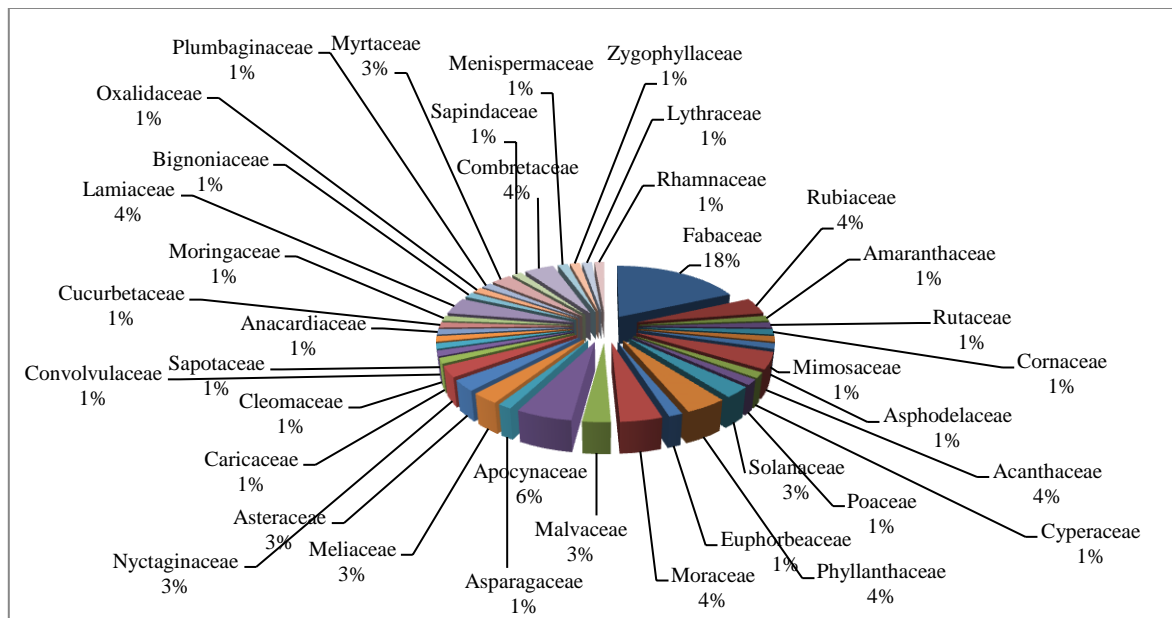


Figure 4: Families and percentage of species belonging to these families



**Table 1: All recorded medicinal plants.**

Botanical name	Common name	Family	Habit	Plant part	Associate traditional knowledge	Ref*
<i>Acacia catechu</i> (L.f.) Willd.	Kattha Or Kher	Fabaceae	T	Fr	Useful in the treatment of sore throat, cough, respiratory diseases and helps in healing wounds	6, 7, 8, 9, 10, 11, 12, 13 & 14 (Ref*: References that used to identify all the plants)
<i>Acacia nilotica</i> L. Delile	Deshi Babool	Fabaceae	T	St	Useful in the treatment of gum pain and toothache	
<i>Achyranthes aspera</i> Linn	Chid-Chida	Amaranthaceae	S	Sd, Lf, Rt	Useful in gout disorder and reduces appetite and Bulimia	
<i>Adina cordifolia</i> (Roxb.) Brandis	Haldu	Rubiaceae	T	Lf	Useful in the treatment of Necrotizing Fasciitis and wound healing	
<i>Aegle marmelos</i> Linn	Bel	Rutaceae	T	Fr, St, Rt	Fruit juice is useful in killing head lice. Helpful in the treatment of night blindness	
<i>Alangium salviifolium</i> (L.f.) Wangerin	Akol	Cornaceae	T	St, Sd, Rt	Useful in treating high fever and diarrhea	
<i>Albizia lebeck</i> (L.) Benth.	Sirs	Mimosaceae	T	Sd, Lf, Rt	Cough is cured by eating leaves in ghee. The plant is also used in treating diarrhea and as a semen augmentor.	
<i>Aloe barbadensis</i> Mill.	Ghrit-Kumari	Asphodelaceae	H	Wp	Useful in the treatment of skin diseases	
<i>Andrographis paniculata</i> (Burm.f.) Wall. Ex. Nees	Bhui-Neem Or Chirayata	Acanthaceae	H	Wp	Useful in the treatment of cough, cold, headache, fever	
<i>Asparagus racemosus</i> Willd.	Shatavar	Asparagaceae	C	Rt	Useful in the treatment of cough, respiratory diseases, diabetes	
<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	T	Br, Sd, Lf	The bark is applied to the wound and the leaves are useful in skin diseases and the oil extracted from the seeds cures many diseases.	
<i>Barleria prionitis</i> L.	Katsairya	Acanthaceae	S	Fl, Lf	Useful in the treatment of tooth and gum diseases and also in the treatment of fever and cough.	
<i>Blumea lacera</i> (Burm.f.) DC.	Kukur-Matta	Asteraceae	H	Lf	Prevents blood flow from the wound	
<i>Boerhavia diffusa</i> L.	Punar-Nawaa	Nyctaginaceae	H	Wp	Useful in heart disease, eye disease treatment	
<i>Boerhavia erecta</i> L.	Punar-Nawaa	Nyctaginaceae	H	Wp	Useful in the treatment of vomiting and diarrhea and in curing stomach pain	
<i>Butea monosperma</i> Kuntze	Farsa or Plash	Fabaceae	T	Wp, Gm	Useful in curing eye disease, diarrhea, and testicular disease	
<i>Calotropis gigantea</i> Linn	Madaar	Apocynaceae	S	Lt	Useful in diseases like toothache, arthritis, knee swelling	
<i>Calotropis procera</i> (Aiton) W. T. Aiton	Fud'hal	Apocynaceae	S	Lt, Lf	Useful in diseases like arthritis, knee swelling	
<i>Carica papaya</i> Linn	Papita	Caricaceae	T	Fr	Useful in the treatment of fever	
<i>Cassia fistula</i> Linn	Dhanbuhar	Fabaceae	S	Fr	Useful in the treatment of chest pain and joint pain	
<i>Cleome viscosa</i> L.	Hul-Hul	Cleomaceae	H	Lf	Useful in fever and wound treatment	
<i>Cuscuta reflexa</i> Roxb.	Aakash-Bali	Convolvulaceae	C	St	Useful in the treatment of cough, cold, and skin disease	
<i>Cynodon dactylon</i> L. Pers.	Dub	Poaceae	H	St, Lf	It is useful in the treatment of hemorrhage and helps treat cephalalgia, urinary related diseases.	
<i>Cyperus scariosus</i> R. Br.	Nagar-Motha	Cyperaceae	H	Rt	Useful in increasing appetite, treating epilepsy	
<i>Dalbergia paniculata</i> Roxb.	Dhobin	Fabaceae	T	Br	Prevents blood flow from the wound	
<i>Dalbergia sisso</i> Roxb	Shisham	Fabaceae	T	Lf	Useful in the treatment of chronic cough	
<i>Datura metel</i> L.	Dhatara	Solanaceae	S	Fl, Fr, Br	Useful in the treatment of arthritis, inflammation, and cholera	
<i>Embllica officinalis</i> Gaertn	Aonla	Phyllanthaceae	T	Fr	Useful in the treatment of arthritis, inflammation, and also in eye-related disorders	
<i>Euphorbia hirta</i> L.	Dudhi	Euphorbiaceae	H	Wp	Latex is used to unfasten thorns from body parts and can relieve baldness.	
<i>Ficus bengalensis</i> Linn	Bargad or Bar	Moraceae	T	Lt, Fr	Useful in the treatment of hemorrhoids	
<i>Ficus racemosa</i> L.	Gular	Moraceae	T	Lf	Leaves are applied on swelling	
<i>Ficus religiosa</i> L.	Pipal	Moraceae	T	Lf, Lt, Br	Bark powder is helpful in the treatment of respiratory diseases, it is also useful in teeth diseases and jaundice.	
<i>Helicteres isora</i>	Marof-Fali	Malvaceae	S	Sd	Useful in the treatment of abdominal cramps and diarrhea	
<i>Hemidesmus indicus</i> (L.) R. Br.	Anant-Mul	Apocynaceae	H	Rt	The fruit is used for the treatment of eye disease, dental diseases, and abortion	
<i>Justicia adhatoda</i>	Adhusa	Acanthaceae	S	Fl, Lf	Useful in the treatment of cough, cold, fever, headache	
<i>Madhuca longifolia</i>	Mahua	Sapotaceae	T	Sd	Useful in healing wounds and swelling	
<i>Mangifera indica</i> Linn	Aam	Anacardiaceae	T	Fr, Wd	Stem juice removes ear dirt and cures fever	
<i>Mimosa pudica</i> Linn	Laajwanti	Fabaceae	H	Wp	Useful in the treatment of indigestion, hemochezia, cough and stones.	
<i>Momordica dioica</i> Roxb. ex Willd.	Jangali karela	Cucurbitaceae	C	Fr	Useful in curing diabetes	
<i>Moringa oleifera</i>	Mungaa	Moringaceae	T	Fr, Lf	It purifies the blood	
<i>Ocimum sanctum</i> Linn.	Tulsi	Lamiaceae	S	Lf, Fl	It is very important in diseases like cough, cold, fever.	
<i>Oroxylum indicum</i> (L.) Kurz	Phaphan	Bignoniaceae	T	Br	Used in chronic cough and diarrhea treatment	
<i>Oxalis corniculata</i> L.	Timpatiya	Oxalidaceae	H	Wp	It surges appetite. Used as a dentifrice	
<i>Phyllanthus amarus</i> Schumach. & Thonn.	Bhui-aonla	Phyllanthaceae	H	Fr	Cures itching and stones	
<i>Phyllanthus fraternus</i> G.L. Webster	Bhui-aonla	Phyllanthaceae	H	Fr	Applying juice on the wound heals the wound	
<i>Plumbago zeylanica</i>	Chitrak	Plumbaginaceae	S	Rt, St	Used in fever and skin disease treatment and give relief from flatulence	
<i>Pongamia pinnata</i> (Linn)	Karanj	Fabaceae	T	Sd, St	The new branch is used as Datun and is useful in the treatment of fever.	
<i>Psidium guajava</i> L.	Jaam	Myrtaceae	T	Fr, St	Eating raw fruit in a fire cures cough and throat.	
<i>Randia dumetorum</i> (Retz.) Oken	Menda	Rubiaceae	T	Wd	Wood is rubbed on the stone and applied to the wound	
<i>Schleichera oleosa</i> (Lour.) Oken	Kushum	Sapindaceae	T	Sd	Useful in the treatment of scabies, itching, and skin diseases	
<i>Senna occidentalis</i> (L.)Link	Bada-charota	Fabaceae	S	Wp	Used in stomach pain treatment, cures sore throat	
<i>Senna tora</i> (L.)Roxb.	Chhota-charota	Fabaceae	S	Wp	Powder of seeds cures cough and itching and is useful in cleansing blood	
<i>Sesbania grandiflora</i> (L.)Pers.	Agast	Fabaceae	T	Br, Fr, Fl	Relieves inflammation and improves digestion, useful in the treatment of fever	
<i>Sida cordifolia</i> L.	Latkena or balaa	Malvaceae	S	Sd, Rt	Used in the treatment of leucorrhoea and Relief from labor pain	
<i>Syzygium cumini</i> (L.) Jamun	Jamun	Myrtaceae	S	Sd, Fr	Useful in the treatment of diabetes and keeps teeth healthy	
<i>Solanum surattense</i> Burm. f.	Kanteri	Solanaceae	H	Fr	Useful in heart disease, eye disease treatment	
<i>Soyimida febrifuga</i> (Roxb.)	Rohan or rohin	Meliaceae	T	Br	Useful in the treatment of diarrhea and abdominal cramps	
<i>Sphaeranthus indicus</i> L.	Godhariya or gorakhmundi	Asteraceae	H	Wp	Useful in relieving headaches and darkening hair	
<i>Tectona grandis</i> Linn f.	Sagaun	Lamiaceae	T	Br	Useful in the treatment of respiratory disease	
<i>Tephrosia purpurea</i> (Linn.) Pers.	Shatkh-pinkha	Fabaceae	H	Fr	Useful in curing stomachache and breathing-related diseases	
<i>Terminalia arjuna</i> (Roxb.)	Kahua or arjun	Combretaceae	T	Br, Rt	Useful in heart disease treatment and bark powder is used to rinse	

Wight & Arn. <i>Terminalia bellirica</i> (Gaertn.) Roxb.	Harra or harda	Combretaceae	T	Br, Lf	Used in the treatment of diseases such as eye disorders, breathing, diarrhea
<i>Terminalia chebulla</i> Retz.	Baheda	Combretaceae	T	Br, Fr	Useful in treating leprosy, diarrhea, and healing wounds
<i>Tamarindus indica</i>	Imli	Fabaceae	T	Fr	Tamarind water heals heat-shock during summer
<i>Tinospora cardifolia</i> (Thunb.) Miers	Gurud or giloy	Menispermaceae	C	St	Stem juice removes ear dirt and cures fever
<i>Tribulus terrestris</i> L.	Gokharu	Zygophyllaceae	H	Fr	Useful in treating hematomis and breaking infertility
<i>Vitex negundo</i> L.	Nirganthi	Lamiaceae	S	Fr, Lf	Improves digestive power and useful in arthritis treatment
<i>Woodfordia fruticosa</i> (L.) Kurz	Ghatki or dhawai	Lythraceae	T	Fl, Sd, Br	Treatment of leucorrhoea and healing wounds
<i>Wrightia antidysenterica</i>	Koriya	Apocynaceae	T	Lf, Br	Useful in the treatment of stomach cramps, sore throat, swelling, etc.
<i>Xeromphis spinosa</i> (Thunb.)	Men-fal	Rubiaceae	S	Fr, Sd	Useful in the treatment of respiratory diseases, high fever, back pain
<i>Ziziphus mauritiana</i> Lam.	Buir or ber	Rhamnaceae	T	Fr, Rt	Facilitates digestion and is useful in wound healing

T: Tree, S: Shrub, C: Climber, and H: Herb  
Fr: fruit, Fl: flower, Lf: leaves, Rt: root, Sd: seed, Br: bark, St: stem, Wd: wood, Wp: whole plant, Lt: latex, Gm: gum

**Table 2: Presents the family names and the number of species related to them**

Serial number	Name of family	Number of species	Serial number	Name of family	Number of species
1	Fabaceae	13	21	Caricaceae	1
2	Rubiaceae	3	22	Cleomaceae	1
3	Amaranthaceae	1	23	Convolvulaceae	1
4	Rutaceae	1	24	Sapotaceae	1
5	Cornaceae	1	25	Anacardiaceae	1
6	Mimosaceae	1	26	Cucurbitaceae	1
7	Asphodelaceae	1	27	Moringaceae	1
8	Acanthaceae	3	28	Lamiaceae	3
9	Cyperaceae	1	29	Bignoniaceae	1
10	Poaceae	1	30	Oxalidaceae	1
11	Solanaceae	2	31	Plumbaginaceae	1
12	Phyllanthaceae	3	32	Myrtaceae	2
13	Euphorbiaceae	1	33	Sapindaceae	1
14	Moraceae	3	34	Combretaceae	3
15	Malvaceae	2	35	Menispermaceae	1
16	Apocynaceae	4	36	Zygophyllaceae	1
17	Asparagaceae	1	37	Lythraceae	1
18	Meliaceae	2	38	Rhamnaceae	1
19	Asteraceae	2			
20	Nyctaginaceae	2			
				<b>Total species: 71</b>	

**Table 3: Presents the types of plants**

Habit	Number of species	Occurring %
Tree	33	25%
Shrub	16	23%
Herb	18	6%
Climber	4	46%
Total	species: 71	100%

**Table 4: Presents useful plant parts and related species numbers.**

Serial number	Useful plant part	Number of species
1	Fruit	23
2	Flower	6
3	Leaves	18
4	Root	11
5	Seed	12
6	Bark	13
7	Stem	9
8	Wood	2
9	Whole plant	11
10	Gum	1
11	Latex	4

### CONCLUSIONS

The paper is conveying comprehensive and collective information on diversity and local traditional medicinal knowledge of plants. In the scope of the present study, a total of 71 medicinal plants belonging to 38 families were detected to be used for curative purposes in Sihawa, Dhamtari district. The study revealed that local tribal communities depend upon plant-based primary treatment for common and severe disease such as wounds, cold, fever, cough, diarrhea, dysentery, skin disorders, etc. Among plants used in traditional medicine and remedies of the study area, a number were poly-functional. As data indicating there is extremely diverse flora of medicinal plants that need to be conserved with the help of local inhabiting tribes and people. Under the continuous botanical survey, many times such plants are collected which have very little left in that habitat, so during this survey, all the plants were identified in their natural habitat, and no plant was harmed in any way. Thus it is the Authors first step towards the conservation of nature's gifts.

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