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Ethno Medicinal Plant Profile Of Sonbhadra (U.P.)

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Abstract :

The Present Study deals with the total 171 Angiospermae species belonging to 150 genera of 60 families, which have immediate and effective solution for making comfortable future for human population against disease like gastrointestinal problem, fever, epilepsy, leukorrhea, male and female contraceptive, body pain, wound, cough and cold, snake and scorpion bite, jaundice, diabetes etc. The Dicotyledons are represented by 153 species of 130 genera and 51 families, while Monocotyledons are represented by 18 species of 15 genera and 9 families. The percentage of Dicotyledons; Monocotyledons is 89.4:10.6. It is vital and essential to integrate activities involving both biodiversity and cultural conservation into such works. Research needs to be enhanced to identify plant with ethnomedicinal values and to isolate compound of medicinal importance.

Keyword: Angiospermae, population, dicotyledons, ethnomedicinal.

INTRODUCTION :

The plant kingdom until now holds large number of species with the medicinal value which have yet to be discovered. Lots of plants were screened for their pharmacological and medicinal values like, hypoglycaemic, hepato-protective, hypotensive, anti-fertility, anti-inflammatory etc. Pharmacognosists with a multidisciplinary background are suitable to make precious donation in the field of phytomedicines and plants plays a veritably important part in the field of medicines. Plants have always been the source of medicines and of the direct use to the mankind. According to the earlier workers; Ayurveda, the Science of life, dates back to the days of Charaka Samhita and Sushruta Samhita (1,200 AD). The passage of time saw the birth and development of the modern medical system. The faster pace and the need for the rapid cure led to the proliferation of the synthetic drugs. Medicinal herbs are moving from fringe to mainstream use with free from side effects caused by synthetic chemicals: Recently, considerable attention has been paid to utilize eco-friendly and biofriendly plant-based products for prevention and cure of different human diseases. Considering the adverse effects of synthetic drugs, the Western population is looking for natural remedies, which are safe and effective. It is documented that 80% of the world's population has faith in traditional medicine, particularly plant drugs for their primary health. India is one of the 12-megabiodiversity centres with two hot- spots of biodiversity in the Western Ghats and North-eastern Region. There are about 400 families in the world of the flowering plants at least 315 are represented in India. The district Sonbhadra is also known to have rich flora of medicinal plants and it occupies the southernmost part of Uttar Pradesh,

surrounded in the north by Mirzapur and Varanasi districts of U.P, in the south by Surguja district of Chhattisgarh, in the south -east by Palamau district of Jharkhand. The district lies in the Vindhyan plateau between 23°45' to 24°34'N latitude and 82°45' to 83°23'E longitude. The elevation above the mean sea level ranges between 315m to 485m'. The total geographical area is 6788 sq.km. Ethnobotanically, this region has remained under-explored. Vast stretches of the Sonbhadra region were once covered with thick natural forest. However, there has been rapid industrialization in the recent years which has resulted in the rapid deforestation, which is tropical dry deciduous type, and conversion of natural forest ecosystem into the marginal cropland and savanna. The present review aims to create awareness about this medicinal wealth of Sonbhadra district to draw attention to Phyto chemists.

Ethnomedicinal investigation was conducted in the different localities of the Sonbhadra district and number of valuable data on the uses of indigenous medicinal plants were recorded. The major tribes of the Sonbhadra district are Kols, Baigas, Ghasiyas, Gonds and Kharwars'. The district is also periodically visited by nomads such as Natts and Saperas which also have a very good mosaic culture. In India the of uses medicinal plant goes back to 300 BC .In this "Charak Samhita" a document on herbal therapy by "Charak reports"on the production of 340herbal drugs and their uses were recorded (Ved prakash et.al;1991, Mehra et .al.2014)The introduction of Ethnobotany by faults (1958) wrote first on direct relationship between plant and human being new subject entitled "Introduction to ethnobotany "Robbins Harrington. proremarco(1916)defined the term ethno botany which is not nearly a book on definition and cataloguing of plant used by primitive people and attributes to the discipline ethno botany has attracted a good number scientists to entertain footer studies in different parts of the world, specially where population still depend on nature resource in practically indigenous condition and impact of modern system of medicines has not reached to them (Schultes, 1962 Altschul 1973and startword,(1976).

Climate change in Sonbhadra :

Type: Tropical monsoon climate

Temperature: 5°C (winter) to 45°C (summer)

Rainfall: ~1000–1200 mm annually, mostly from June to September

Soil Types: Lateritic, red loamy, and alluvial

Vegetation: Tropical dry deciduous forest

Impact of Climate Change on Ethnomedicinal Plants :

1. Habitat Loss and Fragmentation

Rising temperatures and irregular rainfall patterns are altering forest ecosystems. Droughts and floods are degrading habitats of medicinal plants like *Sarasa Asoka, Withania somnifera, and Rauwolfia serpentina.*

2**. Phenological Changes**

Shifts in flowering and fruiting times affect the availability and potency of medicinal compounds. Seasonal mismatches can disrupt traditional harvesting cycles.

3. Reduction in Plant Diversity

Many species are becoming rare or endangered due to stress from heat, pests, and water scarcity. Climate-sensitive plants are being replaced by more resilient but non-medicinal species.

4. Increased Pressure on Natural Resources

Tribal communities, already marginalized, rely more heavily on fewer remaining species. Overharvesting and lack of regeneration further threaten sustainability.

5. Loss of Indigenous Knowledge

As plant populations decline, the associated traditional knowledge is also disappearing. Younger generations are less involved in ethnomedicinal practices due to modern influences.

Key Ethnomedicinal Plants at Risk in Sonbhadra :

Plant Name Local Name Uses Threat Level

Plant name: *Rauwolfia serpentina*

Local name *Sarpgandha*

Uses: Hypertension, snakebite

Threat level High

Plant name Withania *somnifera*

Local name Ashwagandha

Uses: Stress relief, immunity

Threat level Medium

Plant name *Terminalia chebula*

Local name Harad

Uses Digestive health

Threat uses Medium

Plant name *Tinospora cordifolia*

Local name Giloy

Uses: Fever, immunity booster

Threat Low

Plant name *Saraca Asoka*

Local name Ashoka

Uses Menstrual disorders

Threat level High

Adaptive strategies and conservation measures:

1. **In -situ Conservation**: Protecting natural habitat through forest management and community reserves.
2. **Ex-situ Conservation**: Botanical gardens, seeds banks, and nurseries for rare medicinal plant
3. **Awareness and Documentation**: Promoting agroforestry and cultivation of key species under controlled condition.
4. **Policy support**: Integrating ethnomedicinal conservation into regional climate adaptation plants.

Research objectives:

Description of Study Area: - The Area under investigation of ethno medicinal plant responsible for fever treatment falls under the district of Sonbhadra, Uttar Pradesh, India and came into existence in March 4, 1989 after the division of district Mirzapur. The Sonbhadra district is situated in the vindhyan plateau lying between 23° 45' to 24°34' N latitude and 82°45' to 83°23' E longitude covering an area of 6788 Km.

It is bounded by Mirzapur district in the north- west and Chandauli district of Uttar Pradesh in the north, Kamoor and Rohats district of Bihar in the northeast, Garhawa district of Jharkhand state in the east, Korea and Sarguja district of Chhattisgarh state in the South and Singrauli district of Madhya Pradesh in the west (Fig. : 1). The elevation above the mean Sea level ranges between 315m to 485m?. Climatically the area of Sonbhadra is dry and tropical type. The summer temperature ranges between 22.8 to 42° C and winter between 8 to 17.5°C The temperature in summer may reach upto 45°C and in winter below 5°C (upto 2°C). The average of annual rainfall is 1065mm. The forest of Sobhadra district is tropical and dry deciduous types covering an area of 2447. Km' (Where dense forest area is 1078 Km' and Open forest area is 1369 Km*) The main tribal inhabitants of this area are Agaria, Gond.Kharwar, Chero, Panika etc. (Singh et.al. 2002). The tribal people of this district primarily depend on ethno medicinal plants of their surrounding in order to cure different types of fevers, such as Malaria, Typhoid, Chronic fever and so on. This traditional knowledge about medicinal plants and their uses are transmitted orally from one generation to another generation by ancestors respectively.

Fig. 1 Map of Sonbhadra District of Uttar Pradesh India

Data Collection:

For the purpose of collection and documentation of ethno medicinal plants of Sonbhadra district related to fever treatment an extensive field survey were done from March 2021 to June 2021 as most of the plants were in the flowering stage and were easy to identify. During field trips Informational were collected through pretested questionnaire in the format given in the supplementary information, direct observations, discussion and interview with traditional healers, knowledgeable person, local Vaidyas and old women's of the tribal society. It was found that the majority of respondent were between 61 to 75 years old. The plants doubtful to identify were checked with their authentic specimen lodge at the herbarium of National Botanical Research Institute, Lucknow as well as Botanical survey of India, Prayagraj. During this process the help of experts were also taken. The medicinal plants species were collected for the preparation of herbaria.

Material and method:

The field survey was conducted in Ghorawal,Robertsganj, Chopan ,Dudhhi, Nagawa and Chatra blocks of the district as per the suggested methodology. Under this study the information was gathered from tribals, local people, medicines man (Vaiga)using an integrated approach of personal contact, interaction, interviews with questionnaire, group discussion, field visit, botanical collection and our own observations. During this study many remote villages were visited to interact with the tribals. The information was verified and cross checked by contacting several other persons of the area. After that collected information was compared with published literature. Then the trees are enumerated in alphabetical order, the botanical name, local name family and ethnobotanical uses are documented and presented in table.

Table :1 List of Ethno medicinal Plants used to cure different types of fevers by the tribal people of Sonbhadra District, U.P. India.

S.No	Botanical Name, Family, Common name (Hindi), Habit	Part Used	Use Value (UV)	Ethno Medicinal uses
1.	*Andrographis paniculata* (Burm.f) Nees F- Acanthaceae CN- Kalmegh H- Herb	Whole Plant	0.75	Decoction of whole plant along with *Tinospora cordifolia* Stem, *Zingiber Officinalae* and *Piper nigrum* overcome to Malaria.
2.	*Azardirachta indica*(juss) F- Meliaceae CN- Neem H- Tree	Bark	0.32	Decoction of Bark mixed with 500mg *Cinnamonum zylanicum* is used to destroy general as well as periodic fever
3.	*Clerodendrum serrate (L)* moon F- Verbenaceae CN- Bharangi H- Shrub	Leaves	0.20	Decoction of leaves are used for treatment of Malaria fever
4.	*Carica Papaya (L)* F- Cariaceae CN- Papeeta H- Tree	Leaves	0.56	Decoction of leaves mixed with water is taken to cure dengue fever
5.	*Dalbegia sisso (Roxb. Ex.Dc)* F- Fabaceae CN- Sheesham H- Tree	Bark	0.48	Small amount of bark boiled with milk is taken to overcome all kinds of fever.
6.	*Fumaria parviflora (Lamk)* F – Fumariaceae CN- Pittapapara H- Herbs	Whole plant	0.65	Decoction of whole plant mixed with *Zingiber Officinalae* is taken elevate all kinds of fever.

Table 1. Ethnobotanical uses of trees found in district Sonbhadra

S.No	Botanical name	Local Name	Family	Plant part used	Ethnobotanical use
1	*Acacia catechu* Linn.	Khair/ Kattha	Fabaceae	Bark, Root	Diarrhoea, sore throat, Skin diseases, Rheumatism
2	*Aegle marmelos* Linn	Bel	Rutaceae	Leaf, fruit	Leaves are used in diabetes, fruits act as a astringent, used in diarrhoea, dysentery and piles
3	*Albizia lebbeck* Linn	Siris	Fabacae	Bark, leaf,	Paste of bark is applied in mouth ulcers, used in cough and as antidote to snake bite. Leaf juice used to cure night blindness and also used as blood purifier and anti-inflammatory agent
5	*Anogeissus latifolia* Roxb.	Dhaura	Combretaceae	Bark, leaves	Bark is used in liver complaint and applied externally in wound healing. The juice of leaves is given in purulent discharge from ear.
6	*Anthocephalus cadamba* Miq.	Kadam	Rubiaceae	Leaf	Leaf juice is used in stomach pain, wounds, fever
7	*Azadiracta indica* Juss	Neem	Miliaceae	Bark, fruit, twig, seed oil	Bark is used in rheumatism, constipation, fever and cough, Leaves are used in skin diseases, diabetes, tuberculosis, small pox, and toothache, twigs are used as a toothbrush to cure pyorrhea. Oil is used in skin diseases, leprosy and ulcers
8	*Bauhinia purpurea* Linn	Gulabi kachnar	Fabaceae	Leaf, Bark	Leaf is used in jaundice. Stem bark is used to cure wounds
9	*Bauhinia variegata* Linn	Kachnar	Fabaceae	Flower, Bark,	The flowers are laxative, dried buds are used to cure diarrhea. Leucorrhoea, Bark decoction is also used in diarrhea, mouth ulcer
10	*Bombax cieba* Linn	Semal, Semar	Bombacaceae	Latex, bark, leaves	Latex is used in dysentery; bark is used in leucorrhoea and dysentery. Leaves are used in anaemia and rheumatic pain.
11	*Boswellia serrata* Roxb. Ex Colebr	Salai	Burseraceae	Resin, leaves	Resin is used in rheumatic and joint pain and in hair tonic, Leaves are used in wound healing
12	*Buchanania lanzan* Spreng	Cheronji,Char/ Pyar	Anacardiaeae	Bark, leaves, seed	Seed oil is applied to glandular swellings of neck. Bark is used in diarrhoea stomach pain. The leaves are valued for their tonic and cardiotonic properties and their powder is a common medicine for wounds.
13	*Butea monosperma* (Lamk.) Taub	Dhak/Cheul	Fabaceae	Leaf, flower, seed	Leaf juice is used in worm infestation. Flower is used for eczema and leaves for the treatment of leucoderma
14	*Cassia fistula* Linn	Amaltas	Fabaceae	Flower	Flower paste is used in burns
15	*Dalbergia sisso* Linn	Sesham	Fabaceae	Leaf, Bark	Leaves are used in liver disorder, jaundice and gonorrhea. Bark powder is used in bleeding piles and diarrhea.
16	*Diospyros melanoxylon* Roxb	Tendu	Ebinaceae	Root, flower	Root paste is used in scorpion sting. Flowers are used to cure leucorrhoea, dysentery
17	*Emblica officinalis* Gaertn	Aonla	Euphorbiacea	Fruit, Bark	Fruit is used in stomach trouble and hair oil, anemia, eye diseases, tonic

18	*Holoptelia integrifolia* (Roxb.) Planch	Chilbil	Ulmaceae	Leaf	Leaves are used in body inflammation and suppuration of boils
19	*Lagerstroemia parviflora* Roxb.	Siddha/	Lytheraceae	Bark	Bark is used in lactation problems
20	*Lannea coromanealica*	Jhingan/Gurja	Anacardiaceae	Bark	Stem bark juice is applied on cut and injuries
21	*Madhuca latifolia* Roxb.	Mahua	Sapotaceae	Flower, flower, twigs. Leaves	Flower is used in rheumatism. Alcohol obtained from flower is applied externally in body pain. Twigs are used in pyorrhea. Leaves ash mixed with butter/ghee is applied on burns and scalds
22	*Mallotus philipinensis* Lam.	Rohini	Euphorbiaceae	Fruit	Fruit powder is used in skin diseases and blisters in the ear
23	*Metaygyn aparviflora* (Roxb.) Korth	Kaima/ Gurahi	Rubiaceae	Leaf	Leaf paste is applied externally on wounds
24	*Pterocarpus marsupium* Roxb.	Bija sal/Biya	Fabaceae	Stem, Leaves	Decoction of stem is given in diabetes. Paste of leaves is applied in skin diseases.
25	*Schleichera oleosa* (Lour.) Oken	Kusum	Sapindaceae	Flower	Flower is used as a hair tonic.
26	*Semicarpus anacardium* Linn	Bhela	Anacardiaceae	Seed	Seed oil is used externally in rheumatism
27	*Terminalia arjuna* (Roxb.)ec DC	Arjun	Combretaceae	Bark	Dysentery, high blood pressure
28	*Terminalia bellirica* (Gaertn) Roxb.	Bahera	Combretaceae	Fruit	Stomach trouble, Used as laxative, menstrual disorder
29	*Terminalia chebula* (Gaertn) Retz.	Harra	Combretaceae	Fruit	Stomach trouble, used as a purgative,
30	*Zyzyphus numelaria* (Burm.f.) wt. and Arn	Jharberi	Rhamnaceae	Bark, fruit	Decoction of bark is used in dysentery. Fruits are used in digestive problems

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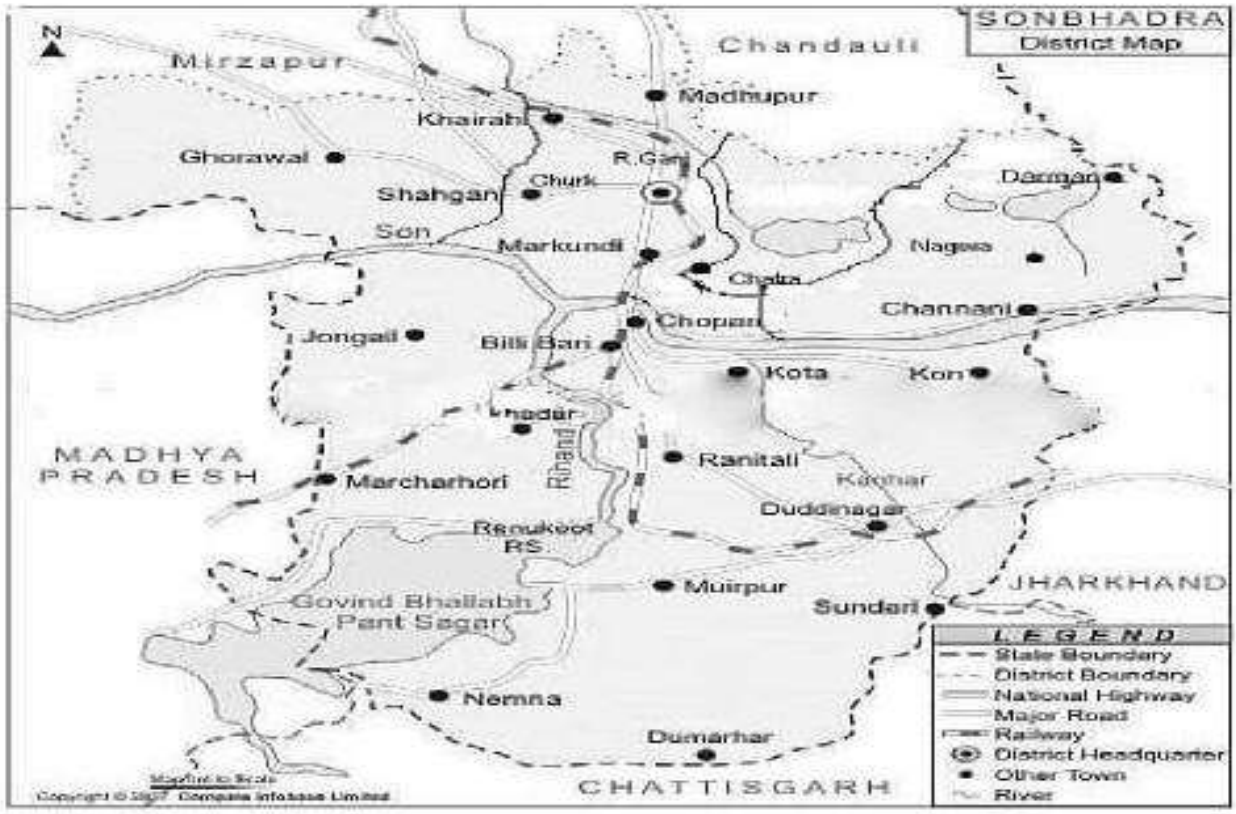
Result and discussion:

The present ethnomedicinal survey has identified 30 tree species belonging to 15 families, which are uses to cure human ailments. Tribal people and local medicine man uses different plant parts in curing different disease, among these plant parts leaves and bark has most frequent use. It is quite clear from the table I that diarrhoea, dysentery, diabetes, fever, cough, jaundice, poisonous bite, toothache, gastric troubles, skin disease and women related problems are the main human ailments for which locally available ethno-medicinally important trees are used. Out of 30 trees species documented for ethnomedicinal values, maximum(8)belongs to family Fabaceae (leguminaceae) followed by family Combritaceae (4) and Anacardiaceae(2). During the field survey it was also seen that about 9 trees species *Azadiracta indica,Aegle mamelons, Albizia lebbeck, Anthocephalus cadamba,Butea monospermic, Madhuca latifolia, Emblica officinalis,Holoptelia intigrifolia and Cassia fistula* were found near the house hold and agricultural field in the village, on which villagers depend to cure disease.



Conclusion:

The ethnomedicinal plant diversity of Sonbhadra district reflects the deep -rooted traditional knowledge and close relationship between the indigenous communities and their natural environment .The region , being rich in biodiversity and cultural heritage, support a wide range of plant species used by tribal and rural population for treating various ailments. However, this valuable traditional knowledge is at risk due to deforestation, climate change, validate the ethnomedicinal uses of this habitat loss, and the declining interest of younger generation. Therefore, there is an urgent need to document, conserve, and scientifically plant.

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