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ETHNO-MEDICINAL IMPORTANCE OF FLORA OF DISTRICT BEGUSARAI (BIHAR)

Botany

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ABSTRACT

Background: Ethno-medicinal importance of medicinal plants is a closest dynamic relationship between plants and people. In Begusarai District most of the people live in rural areas. In almost all villages, there are some traditional herbal practitioners. **Aim and Objective:** The aim and objective of this study is to document the species of medicinal plants used by rural communities of Begusarai. **Methods:** Medicinal plants were surveyed for their medicinal uses in rural areas of Begusarai. Plant parts used for treating diseases and their mode of administration were determined. The use values of plant species were also computed. A total of 144 informants were interviewed regarding the medicinal plants utilized for treating diseases. **Results:** It was observed that the differences in educational status of informants did not have significant impact on the knowledge on indigenous medicinal plants. Their knowledge on medicinal plants was passed down from their ancestors through oral traditions. A total of 20 species of medicinal plants belonging to fifteen families of flowering plants have been documented to be used by rural communities of Begusarai District. The most representative family was Combretaceae with 4 species, followed by Asteraceae (3 species) and Caesulpinaceae (2 species). Other family included least number of medicinal plants. The use value of Mesuaferra, Saracaindica, Aloe vera, Coleus barbetus, Psidium guajava and Piper betel was highest 0.527, 0.521, 0.521, 0.511 and 0.561 respectively and, therefore, considered to be the most important medicinal plant species of Begusarai District. **Conclusions:** It can be concluded that the knowledge and usage of conventional medicine for the treatment of various diseases is still a major part of life and culture.

KEYWORDS

Ethnobotany, Medicinal plants, Begusarai District, Use value, Traditional medicine

INTRODUCTION

Ethno botany is the branch of life science which deals with the study of the dynamic relationship between plants and people (Robert Voeks[1]). It traces its early history to the colonial quest for precious spices such as cinnamon, clove, nutmeg, and other tropical treasures. Ethno botany is greatly linked to taxonomy, nutrition, pharmacognosy, phytochemistry, palynology, ecology and conservation biology.

Begusarai is the administrative headquarters of District Begusarai which is one of thirty-eight Districts of Bihar. Its total area is 1918 sq kilometers, and its total population is 2970541 with literacy rate of 59.13 %. The District lies on the northern bank of River Ganga. The District lies in the North Bihar between the latitudes $25^0$15' and $25^0$45' North and longitudes $85^0$45' and $86^0$36' East. Jai Mangla Temple, Nau Lakha Temple and Kabar Lake are the historical places of District Begusarai. The present study was carried out in eighteen blocks of District Begusarai viz. Begusarai, Barauni, Teghra, Matihani, Bachhwara, Mansurchak, Naokothi, Cheriabariyarpur, Sahebpur Kamal, Bakhari, Birpur, Dandari, Garhpura, Balia, Chhorahi, Khodawandpur, Bhagwanpur, and Samho Akha Kurha.

The traditional knowledge of medicine held by regional peoples is an important source that should be conserved. This knowledge continues to decline through time and there are only few indigenous, rural communities with wide traditional and botanical knowledge. Medicinal plants have played a significant role in maintaining human health and improving the quality of life for thousands of years and have served as valuable components of medicines, food, beverages, cosmetics, dyes and others (Chopra et al[2], Jain[3], Dananjeyan and Bama[4], Pradhan and Rahman[5], Mondal and Rahman[6], Marandi et al[7].

The traditional herbal practitioners efficiently treat various diseases. Apart from traditional practitioners, peoples of tribal communities give some folklore medicines. The knowledge of ethno medicine has been carried out from generation to generation among ethnic people orally and the medicinal plants survived in their minds and soul. No serious effort has been made regarding the ethno medicinal importance of medicinal plants of Begusarai District till today and hence the present investigation was undertaken. The aim of this study is to highlight the traditional uses of medicinal plants surveyed.

Methodology

Data were collected through a semi-structured interview of 144 informants of each of the eighteen blocks of Begusarai District who are knowledgeable on medicinal plants. Informants were composed of the rural chieftains, traditional healers and community elders. This semi-structured interview was composed of questions on medicinal plants, its utilization as traditional medicine, the diseases treated by the plants, the plants used for various diseases, the parts used, how the parts of plant consumed.

The information on the rural individuals of Begusarai with special reference to socio-demographic profile and on the medicinal plants was based on the interview. The use value was calculated to quantify the ethno botanical data gathered. The Use Value was determined by the formula: UV = U/N.

Where, U= the number of citations per species and N= the number of informants

High UV indicates high use-reports for a plant implying its relative importance to the local community. Low UV indicates few reports related to its use.

RESULTS AND DISCUSSION

A total of 144 informants were selected who were participated in the ethnobotanical surveys. The block wise informants, their age groups, educational attainment have been presented in Table-1

Table-1: Demographic Profile of the interviewed respondents in eight blocks in Begusarai

Blocks	Number of Respondents	Average age group			Gender		Educational attainment		
		18-30	31-50	Above 50	Male	Female	Elementary	High school	Graduate and above
Begusraia	8	1	5	5	3	5	2	3	6
Barouni	8	1	3	5	3	5	2	3	5
Teghra	8	0	3	5	4	5	2	3	4
Matihani	8	0	3	5	4	5	1	3	4
Bachhwara	8	1	4	5	3	5	1	3	4
Naokothi	8	1	2	5	3	5	1	3	2
Mansurchak	8	1	2	3	2	5	2	3	3

Chariabari yarpur	**8**	**1**	**1**	**2**	**2**	**5**	**2**	**3**	**4**
Sahebpur Kamal	**8**	**1**	**5**	**0**	**3**	**5**	**2**	**3**	**5**
Bakhari	**8**	**1**	**3**	**5**	**3**	**5**	**2**	**3**	**5**
Birpur	**8**	**1**	**3**	**5**	**4**	**5**	**1**	**3**	**2**
Dandari	**8**	**1**	**2**	**5**	**2**	**6**	**2**	**3**	**2**
Garhpura	**8**	**0**	**5**	**5**	**2**	**5**	**2**	**3**	**1**
Balia	**8**	**0**	**5**	**5**	**4**	**5**	**2**	**3**	**1**
Chhorahi	**8**	**0**	**3**	**5**	**3**	**5**	**2**	**3**	**1**
Khodawandpur	**8**	**1**	**2**	**2**	**2**	**6**	**3**	**3**	**1**
Bhagwanpur	**8**	**2**	**2**	**5**	**2**	**5**	**2**	**3**	**1**
Samho Akha Kurha	**8**	**2**	**1**	**3**	**3**	**5**	**2**	**3**	**3**
Total	**144**	**15**	**54**	**75**	**52**	**92**	**33**	**57**	**54**

It was observed that the differences in educational status of informants did not have significant impact on the knowledge on the indigenous medicinal plants. It was found that their knowledge on medicinal plants was passed down from their ancestors through oral traditions. When rural communities of Begusarai encounter disease, they first use medicinal plants. When their traditional herbal medicines can no longer cure the disease, they use other medicines for consultation and treatment.

Most of the traditional healers belong to the older generation of age group 50 and above. The respondents of the age group 18-30 years had no knowledge about the medicinal plants.

This indicates a decline in the knowledge of the use of medicinal plants that pose a potential disappearance of this ancestral knowledge in the future.

Some selected medicinal plants collected from Begusarai, their local names, parts used, mode of administration and diseases treated and their use value have been presented in Table-2.

Table-2: Medicinal plants and their use value

Family	Scientific name	Local name	Parts used	Mode of administration	Disease to be treated	Use value
Acanthaceae	Adhatodavasica Linn. Nees	Vasaka	Leaves	Decoction	Cold, cough, stomachache, Tuberculosis, Malaria, Constipation, Sprain	0.355
Asteraceae	Artemisia vulgarisLii.	damongmaria	Leaves and flowers	Decoction	Fever, Sore throat, Cold, cough and Phlegm	0.551
Caesulpinaceae	Saracaindica Linn.	Ashoka	Leaves and bark	Extract	Menstrual irregularities, uterine stimulants	0.521
Calophyllaceae	Mesuaferrea Linn.	Nagkeshar	Leaves and flowers	Decoction, powder	Thirst, itching, eczema and scabies	0.527
Combretaceae	Terminalia bellirica (Gaerth.) Roxb	Bahera	Fruits	Fruit powder	Liver, respiratory tract infection, cough	0.452
Liliaceae	Aloe vera Linn. (Web &Benth	Ghritkumari	Succulent leaves	Gel	Antioxidant, healing of burns, dental plaque, skin wrinkles, lowers blood sugar levels	0.526
Myrtaceae	Psidium guajava Linn.	Amrood	Leaf extract and Fruit	Decoction and fruit pulp	Diarrhea, Dysentery, Gastroenteritis, Hypertension, Diabetes, Caries, Pain relief, Cough, Oral ulcers	0.511
Piperaceae	Piper betel Linn.	Pan	Leaves	Leaf decoction and extract	Cold, Cough, Bronchial asthma, Rheumatism, Stomachalgia	0.526
Solanaceae	Withaniasomnifera(L.) Dunal	Ashwagandha	Leaves, flowers, fruits	Decoction and paste	Aphrodisiac, Liver tonic, Anti-inflammatory, Asthma	0.421
Amaranthaceae	Achyranthusaspera Linn.	Chirchiri	Leaves, seeds, Flower spikes	Use as Decoction to affected parts	Dropsy, hydrophobia, snake bites, ophthalmia and cutaneous disease	0.035
Asclepiadaceae	Calotropisprocera (Air) R.Br	Madar, Aak	Leaf latex, roots	Bark powder, leaf sap and latex	Emetic, cathartic and digitalic properties, leprosy and elephantiasis, snakebites, asthma	0.115
Apocyanaceae	Rauvolfiaserpentina (L.) Benth. Ex Kutz	Indian snakeroot, devil pepper, or serpentine wood	Leaves, stem, flowers, roots	Extracts of plant parts that contain many alkaloids	high blood pressure and mental illness; reserpine has been used to treat mild to moderate high blood pressure, schizophrenia, and some symptoms of poor circulation.	0.115
Apiaceae	Centellaasiatica Linn.	Bramhanibuti	Leaves	Decoction	Repair of nervous tissue due to spinal injury, neuromuscular disorder, skin treatment.	0.121
Asteraceae	Eclipta alba (L.) Hassk	Bhringraj	Whole plant	Extract and oil	diverse medicinal values and use it commonly for treatment of gastrointestinal disorders, respiratory tract disorders (including asthma), fever, hair loss and graying of hair, liver disorders	0.295
Asteraceae	Artemisia vulgaris L.	Damongmaria	Leaves and flowers	Decoction	Fever, sore throat, colds, cough and phlegm	0.551
Caricaceae	Caricapapaya Linn.	Papeeta	Fruits, leaves	Whole fruits, ripe or unripe; leaf decoction	Used for treatment of a numerous diseases like warts, corns, sinuses, eczema, cutaneous tubercles, glandular tumors, blood pressure, dyspepsia, constipation, amenorrhoea, general debility, expel worms and stimulatereproductive organs.	0.112
Caesulpinaceae	Cassia fistula Linn.	Amaltas	Leaves, flowers, fruits, bark	Leaf decoction, fruit pulp, bark powder	Astringent, cooling, purgative, febrifuge, tonic, laxative, anthelmintic, emetic, antiperiodic, febrifuge, diuretic, depurative, carminative, anti-inflammatory, diuretic and ophthalmic	0.024
Combretaceae	Terminaliaarjuna(Roxb. ex DC) Wt and Arn	Arjuna	Fruits	Fruit powder	Used to balance the three “humors”: kapha, pitta, and vata. It has also been used for asthma, bile duct disorders, scorpion stings, and poisonings	0.431
Cobretaceae	Terminaliachebula Retz.	Black- or chebulic	Fruits	Fruit powder	Used for high cholesterol and digestive disorders, including both diarrhea and constipation, and	0.456

		myrobalan			indigestion	
Combretaceae	Tinosporacordifolia (Willd) Miers ex Hook. F. &Thoms	Giloy, Gurcha	Leaves and stem	Extracts of leaves and stem	Used for diabetes, high cholesterol, allergic rhinitis (hay fever), upset stomach, gout, lymphoma and other cancers, rheumatoid arthritis (RA), hepatitis, peptic ulcer disease (PUD), fever, gonorrhea, syphilis, and to boost the immune system	0.235

The ethno-medicinal values of only twenty important medicinal plants were recorded among people of rural area of District Begusarai. The Use Value (UV) Adhatodavasika, Artemisia vulgaris, Saracaindica, Mesuaferrea, Terminalia bellirica, Aloe vera, Psidium guajava, Piper betel, Withaniasomnifera, Achyranthus aspera, Calotropis procera, Rauvolfia serpentine, Centellaasiatica, Eclipta alba, Artemisia vulgaris, Carica papaya, Cassia fistula, Terminalia arjuna, T. chebula and Tinosporacordifolia were 0.35, 0.551, 0.521, 0.452, 0.536, 0.511, 0.526, 0.421, 0.035, 0.115, 0.115, 0.121, 0.295, 0.551, 0.112,0.024, 0.431, 0.456 and 0.235 respectively. Therefore, these can be considered as the most important medicinal plants used by people of Begusarai District.

The main ailments in the study area were fever, antimicrobials, inflammation, toothache, ophthalmic problems, rheumatism, cancers, snake bites, asthma, cold and cough, skin disorders, dysentery, diabetes, wound healing, jaundice and stomach problems (Table-2). Different types of preparations were used from plant species by tribal and non-tribal communities that included juice, paste, decoction, powder and whole plant extract.

All medicinal plant species were used by people in more than one form of combinations. Majority of plant species were used medicinally in the form of decoction obtained from the leaves, roots, seeds, flowers and bark. The present observations are more or less similar with the previous reports which have been indicated earlier in relation to medicinal plants uses by the Indian traditional system of medicine like Siddha and Ayurveda (Kirtikar and Basu, 2001)[8]. The present reports also gain support from the observation of Nandagoapalanet al., (2015)[9], Ragragioet al[10] andTantengcoet al[11] who have observed similar results on medicinal plants. However, the therapeutic importance has less information on their active phytochemicals and therefore, the active principles responsible for pharmacological action requires further investigation at scientific level to validate the claim.

CONCLUSIONS

It can be concluded that the knowledge and usage of conventional medicine for the treatment of various diseases among the rural communities is still a major part of their life and culture. People of Begusarai District have a strong faith in the efficacy and success of traditional medicine and the results of the present study provide evidence that the medicinal plants continued to play a vital role in the healthcare system.

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