

Seasonal Variation of Ethnomedicinal Plants of Rural Areas of Agra District

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Abstract

A survey of rural areas of Agra district have done for documented ethno-medicinal plants. About 100 plants have reported in rainy, winter and summer seasons. These plants have medicinal importance and some are used by local people of different sites for treatment of different diseases.

Keywords: Ethnomedicinal, Rural Areas, Agra, Seasonal and Importance *etc.*

Introduction

Ethno-botany is the study of the dynamic relationship between plants and people. Ethnobotany is also defined as the study of a region's plants and their practical uses through the traditional knowledge of a local culture and people. According to Jain (2001), ethnobotany is the study of total natural and traditional relationships between men and plants and his domesticated animals. He made pioneering investigations in this field in India and popularly known as "Father of Indian Ethnobotany". India has vast ethnobotanical knowledge from ancient time. Charak Samhita, Sushrut Samhita, Rigveda and Ayurveda are the old Indian literatures, having wonderful knowledge of plants as medicine.

Ethnobotanical surveys are recognized as one of the most effective methods of findings and documenting new medicinal uses of plants (Mahwasane *et al.*, 2013). According to Mbah *et al.*, (2019) traditional medicines variously known as ethno-medicine, folk medicine, native healing and alternative medicine is the oldest form of health care system, and is related to ethnobotany. For ethnobotanical studies of rural areas selected 4 tehsils viz., Etmadpur, Fatehabad, Kheragarh, Kiraoli of Agra district, U.P. with special

emphasis on occurrence of medicinal plants in rural areas.

The Agra district is situated in Western U.P. between 27.11' degree latitude North and 78.0' degree to 78.2' degree longitude East on the bank of Yamuna river. On the North it is bounded by Mathura District, on the South it is bounded by Dholpur district, on the East it is bounded by Firozabad district and on the West it is bounded by Bharatpur. Agra district consists 6 tehsils and 15 blocks the tehsils are Etmadpur, Agra, Kiraoli, Kheragarh, Fatehabad and Bah. Kheragarh is situated on the bank of river Utangan which merges with Parvati and Chambal rivers.

Materials and Methods

Several ethnobotanical surveys were conducted during rainy, winter and summer seasons in rural areas of 4 tehsils viz. Etmadpur, Fatehabad, Kheragarh, Kiraoli of Agra district. The information about the ethnomedicinal uses was collected from Hakims, Vaidyas and older rural people. During survey plants identified tentatively and unidentified plants collected for herbarium preparation and taxonomic study.

These specimens identified with the help of experts and pertinent taxonomic literature (Hooker, 1897; Duthie, 1922; Maheshwari, 1963; Mudgal *et al.*, 1997). These plants have medicinal importance

and some are used by local people of different sites for treatment of different diseases.

Results and Discussion

These are 100 plants belonging to 42 families noted from the survey of rainy, winter and summer seasons of rural and forest areas of Etmadpur, Fatehabad, Kheragarh and Kiraoli tehsils. According to present survey 49 plants are common, which were present in all three seasons. The maximum number of plants *i.e.*, 96 was present in rainy season. The minimum number

of plants *i.e.*, 57 was present in summer seasons. List of the plants and their uses given in the tables.

Ethnomedicinal properties of plants being used in the treatment of different diseases like, tuberculosis, leprosy, piles, typhoid etc. (Kumar et al., 2019). Many people in rural areas have knowledge about the medicinal utility of the local flora. They inherit the knowledge from their elders since people of these areas observe positive effects of the herbal treatment.

S. No.	Name of Plant	Family	Habit	Seasonal Variation			Ethnomedicinal Uses
				Rainy	Winter	Summer	
1	<i>Abutilon indicum</i>	Malvaceae	Shrub	+	+	-	Tuberculosis, ulcers
2	<i>Abrus precatorius</i>	Fabaceae	Climber	+	+	+	Tuberculosis, migraine
3	<i>Acacia concina</i>	Fabaceae	Tree	+	+	+	Hair fall, jaundice
4	<i>Acacia arabica</i>	Fabaceae	Tree	+	+	+	Cleaning the teeth, reduce plaque
5	<i>Achyranthes aspera</i>	Amaranthaceae	Herb	+	+	-	Asthama, bleeding bronchitis
6	<i>Aegle marmelos</i>	Rutaceae	Tree	+	+	+	Tuberculosis, hepatitis
7	<i>Aloe barbadensis</i>	Liliaceae	Herb	+	+	+	Skin problems, healing wounds
8	<i>Albizia lebeck</i>	Fabaceae	Tree	+	+	+	Migraine, conjunctivitis
9	<i>Amaranthus caudatus</i>	Amaranthaceae	Herb	+	+	-	Diabetesmellitus, cancer
10	<i>Amaranthus viridis</i>	Amaranthaceae	Herb	+	+	-	Fever, urinary disorder
11	<i>Amaranthus spinosus</i>	Amaranthaceae	Herb	+	+	-	Bronchitis, leprosy
12	<i>Amaranthus tricolor</i>	Amaranthaceae	Herb	+	+	-	Leucorrhoea, dysentery
13	<i>Argemone maxicana</i>	Papaveraceae	Herb	+	+	-	Constipation, chronic fever
14	<i>Azadirachta indica</i>	Meliaceae	Tree	+	+	+	Antifungal, anti-diabetic, anti-bacterial and antiviral activity
15	<i>Bambusa vulgaris</i>	Poaceae	Tree	+	+	+	Tuberculosis, kidney troubles
16	<i>Barleria prionitis</i>	Acanthaceae	Shrub	+	+	-	Toothache, urinary infection
17	<i>Boerhaavia diffusa</i>	Nyctaginaceae	Herb	+	+	-	Eye problems and liver disorder
18	<i>Bombax ceiba</i>	Malvaceae	Tree	+	+	+	Stomachache, skin problems
19	<i>Bougainvillea glabra</i>	Nyctaginaceae	Climber	+	+	+	Anticancer, antiulcer activity
20	<i>Butea monosperma</i>	Fabaceae	Tree	+	+	+	Skin problems, pimples
21	<i>Cannabis sativa</i>	Cannabinaceae	Herb	+	-	+	Asthma, depression
22	<i>Capparis decidua</i>	Capparaceae	Shrub	+	-	+	Toothache, arthritis
23	<i>Capparis sepiaria</i>	Capparaceae	Shrub	+	-	+	Skin disease, tumors
24	<i>Calotropis procera</i>	Asclepiadaceae	Shrub	+	+	+	Snake bites, mumps
25	<i>Cassia fistula</i>	Fabaceae	Tree	+	+	+	Jaundice, fistula
26	<i>Cassia tora</i>	Fabaceae	Tree	+	+	+	Skin disease, snake bites

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27	<i>Cassia occidentalis</i>	Fabaceae	Tree	+	+	+	Antibacterial, antifungal activity
28	<i>Carissa carandas</i>	Apocynaceae	Tree	+	+	+	Constipation, neurological disorder
29	<i>Casuarina equisetifolia</i>	Casuarinaceae	Tree	+	+	+	Dysentery, diarrhoea
30	<i>Catharanthus roseus</i>	Apocynaceae	Herb	+	+	+	Muscle pain, depression
31	<i>Cedrela toona</i>	Meliaceae	Tree	+	+	+	Diarrhoea, skin diseases
32	<i>Celosia cristata</i>	Amaranthaceae	Herb	-	-	+	Ulcer, eye inflammation
33	<i>Centella asiatica</i>	Apiaceae	Herb	+	+	-	Heal wounds, leprosy
34	<i>Cestrum nocturnum</i>	Solanaceae	Shrub	+	+	-	Aromatherapy, anxiety
35	<i>Chenopodium album</i>	Amaranthaceae	Herb	-	+	-	Cardiotonic, diuretic
36	<i>Citrus medica</i>	Rutaceae	Tree	+	+	+	Asthma, arthritis
37	<i>Cleome viscosa</i>	Cleomace	Herb	+	-	-	Hypertension, malaria
38	<i>Convolvulus prostratus</i>	Convolvulaceae	Creeping herb	+	+	-	Hypertension, ulcers
39	<i>Corchorus capsularis</i>	Malvaceae	shrub	+	-	+	Increase appetite, fever
40	<i>Cordia myxa</i>	Boraginaceae	Tree	+	+	+	Leprosy, gonorrhoea
41	<i>Cuscuta reflexa</i>	Convolvulaceae	Twiner	+	-	-	Jaundice, muscle pain
42	<i>Cynodon dactylon</i>	Poaceae	Herb	+	+	+	Cancer, cramps
43	<i>Dactyloctenium aegyptium</i>	Poaceae	Herb	+	+	-	Small pox, ulcers
44	<i>Dalbergia sissoo</i>	Fabaceae	Tree	+	+	+	Sore throats, hernia
45	<i>Datura stramonium</i>	Solanaceae	Herb	+	+	-	Flower of lord Shiva, traditional Indian medicine
46	<i>Delonix regia</i>	Fabaceae	Tree	+	+	+	Constipation, diabetes
47	<i>Digitalis purpurea</i>	Plantaginaceae	Herb	-	+	+	Congestive heart failure (CHF), irregular heartbeat
48	<i>Eclipta alba</i>	Asteraceae	Herb	+	+	-	Improve digestion, memory loss
49	<i>Emblica officinalis</i>	Euphorbiaceae	Tree	+	+	+	Cardiac health, hair treatment
50	<i>Euphorbia hirta</i>	Euphorbiaceae	Herb	+	+	-	Female disorder, asthma
51	<i>Evolvulus alsinoides</i>	Convolvulaceae	Herb	+	+	-	Memory loss, bleeding piles
52	<i>Feronia elephantum</i>	Rutaceae	Tree	+	+	+	Vomiting, dysentery
53	<i>Ficus benghalensis</i>	Moraceae	Tree	+	+	+	Ulcers, fever
54	<i>Ficus carica</i>	Moraceae	Tree	+	+	+	Gastrointestinal, cardiovascular disorder
55	<i>Ficus religiosa</i>	Moraceae	Tree	+	+	+	Antiulcers, antibacterial activity
56	<i>Gynandropsis pentaphylla</i>	Capparaceae	Shrub	+	-	+	Fever, scorpion skins
57	<i>Ipomoea carica</i>	Convolvulaceae	Shrub	+	+	+	Abdominal disease, headache
58	<i>Lawsonia inermis</i>	Lytheraceae	Shrub	+	+	+	Anticancer, antibacterial activity
59	<i>Lindenbergia indica</i>	Orobanchaceae	Herb	+	+	-	Chronic bronchitis, skin eruption
60	<i>Madhuca indica</i>	Sapotaceae	Tree	+	+	+	Swelling, piles

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61	<i>Mangifera indica</i>	Anacardiaceae	Tree	+	+	+	Hemorrhage, hypertension
62	<i>Mirabilis jalapa</i>	Nyctaginaceae	Shrub	+	+	+	Inflammation, wound healing
63	<i>Morus alba</i>	Moraceae	Tree	+	+	+	Dizziness, premature aging
64	<i>Nerium indicum</i>	Apocynaceae	Shrub	+	-	+	Cardiac muscle, relieve pain
65	<i>Nicotiana plumpaginifolia</i>	Solanaceae	Herb	+	-	-	Wounds, toothache
66	<i>Ocimum basilicum</i>	Labiatae	Herb	+	-	+	Headache, kidney malfunctions
67	<i>Opuntia dillenii</i>	Cactaceae	Shrub	+	+	+	Gonorrhea, constipation
68	<i>Oxalis corniculata</i>	Oxalidaceae	Herb	+	+	-	Influenza, snakebites
69	<i>Papaver somniferum</i>	Papaveraceae	Herb	+	+	-	Reduce pain, blood circulation
70	<i>Parthenium hysterophorus</i>	Asteraceae	Herb	+	+	-	Skin inflammation, diarrhea
71	<i>Peristrophe bicalyculata</i>	Acanthaceae	Herb	+	+	-	Snake poison, bone fracture
72	<i>Phyllanthus niruri</i>	Phyllanthaceae	Herb	+	+	-	Jaundice, gonorrhea
73	<i>Phoenix sylvestris</i>	Arecaceae	Tree	+	+	+	Vomiting, unconsciousness
74	<i>Punica granatum</i>	Lythraceae	Tree	+	+	+	High blood pressure, high cholesterol
75	<i>Pithecelobium dulce</i>	Fabaceae	Tree	+	-	-	Chronic diarrhoea, dysentery
76	<i>Portulaca oleracea</i>	Portulacaceae	Herb	+	+	-	Antiseptic, antibacterial activity
77	<i>Psidium guajava</i>	Myrtaceae	Tree	+	+	+	Dysentery, stomachache
78	<i>Polygonum aviculare</i>	Polygonaceae	Herb	+	+	-	Bronchitis, cough
79	<i>Ricinus communis</i>	Euphorbiaceae	Shrub	+	+	+	Abdominal disorder, arthritis
80	<i>Rumex sp.</i>	Polygonaceae	Herb	+	+	-	Constipation, jaundice
81	<i>Saraca indica</i>	Fabaceae	Tree	+	+	+	Uterine genital, reduce pain
82	<i>Salvadora persica</i>	Salvadoraceae	Tree	+	+	+	Gingivitis, dental plaque
83	<i>Solanum nigrum</i>	Solanaceae	Herb	+	+	-	Pneumonia, tonsillitis
84	<i>Solanum xanthocarpum</i>	Solanaceae	Herb	+	+	-	Cough, asthma
85	<i>Sonchus oleraceus</i>	Asteraceae	Herb	+	+	-	Fever, hepatitis
86	<i>Shorea robusta</i>	Dipterocarpaceae	Tree	+	+	+	Treat wounds, leprosy
87	<i>Spergula arvensis</i>	Caryophyllaceae	Herb	+	+	-	Herbalism, raw materials for pharmaceutical industry
88	<i>Sporobolus sp.</i>	Poaceae	Herb	+	+	-	Eye problems, infertility
89	<i>Stellaria media</i>	Caryophyllaceae	Herb	+	+	-	Gastrointestinal disorder, measles
90	<i>Tamarindus indica</i>	Fabaceae	Tree	+	+	+	Dry eye, parasite infection
91	<i>Tectona grandis</i>	Lamiaceae	Tree	+	+	+	Cold, hair growth
92	<i>Terminalia arjuna</i>	Combretaceae	Tree	+	+	+	Fractures, ulcers
93	<i>Tinospora cordifolia</i>	Menispermaceae	Climber	+	+	+	Chronic fever, corona virus infection
94	<i>Tridax procumbens</i>	Asteraceae	Herb	+	-	-	Dysentery, liver diseases
95	<i>Trigonella foenum-graceum</i>	Fabaceae	Herb	-	+	-	Respiratory infection

S. No.	Name of Plant	Family	Habit	Seasonal Variation			Ethnomedicinal Uses
				Rainy	Winter	Summer	
96	<i>Vetiveria zizanoides</i>	Poaceae	Shrub	+	+	-	Relieving stress, traumas
97	<i>Vernonia sp.</i>	Asteraceae	Herb	+	+	-	Diabetes, fever
98	<i>Withania somnifera</i>	Solanaceae	Shrub	+	+	-	Anxiety, cancer
99	<i>Yucca gloriosa</i>	Asparagaceae	Shrub	+	+	-	High blood pressure, gall bladder disorders
100	<i>Ziziphus jujuba</i>	Rhamnaceae	Tree	+	+	+	Cold, mental retardation
Total number of plants in different seasons				96	87	57	

Conclusion

The study represent traditional health care system is an old age practice in this area. Traditional knowledge is transferred for one generation to another. The present study is very helpful to knowledge about the ethnomedicinal plants of rural areas of Agra district. Vegetation is similarly providing economic, aesthetic and ecological value,

which directly, involve in the life and culture of the local community in their nearby environment. Due to intensive mining and other harmful activities lost vegetation of this area. So, it is necessary to save the vegetation of rural areas of Agra district by special approaches.

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