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AN ACCOUNT OF TRADITIONAL MEDICINAL USES OF WILD PLANTS OF KALESAR NATIONAL PARK, HARYANA, INDIA

Dr. Parul
Department of Botany, Kurukshetra University, Kurukshetra-136119, Haryana, India
Email: drparulkasana@gmail.com

Abstract:
Existence of life is the most unique feature of the earth. This life exists in the form of millions of distinct biological entities commonly called as species. This variety of life forms is also known as biological diversity. This diversity of wild plants in forest is the rich source of food, shelter, and medicinal help for human and other life forms. India has a rich culture about traditional medicinal plant uses since the time of Veda's. So it is urgent need of these days to explore and preserve this traditional medicinal knowledge of India about the wild plant diversity. This paper gives the light upon traditional knowledge of 55 species of wild plants along with photographs of wild plant species in their natural habitat for ident cation purpose of future pharmacological research.

Introduction:
From last two decades the world concentrate on uses of traditional medicine because as after the discovery of quinine. it is considered the most amaizing medicine for malaria treatment. Quinine is a component of the bark of the cinchona (quina-quina) tree, Bark of this tree was used by the native population for the treatment of malarial fever traditionally and the information about its traditional use was transferring from one generation to next generation. So then scientific community recognised the importance of collection and preservation of ethnomedicinal knowledge about the wild plants because it could act as a raw source for discovery of new drugs and also important for pharmacological research. This paper discusses links between wild plants and traditional medicine, and addresses how the raw wild plants are used for public health. Sacred forests are segments of the landscape that represents
old traditions of preserving climax forest patches based on local culture and religious beliefs and they are found throughout the world. A sacred forest represents a functional link between cultural life and the forest management system of a region. Sacred forests have been studied in many parts of the world including Africa, [1], China [2], and especially in India [3-4]. Ethnobotanical studies of sacred forest in India [5-6] Many ethnobotanical studies have been conducted by various researchers in different parts of India [9], [10], [11], [12], [13].However Kalesar National Park of Yamuna Nagar district of Haryana is very less explored for taxonomic and ethnobotanical studies. Therefore many survey of Yamuna Nagar district have been conducted for the documentation of ethnobotanical data and exploration of floristic diversity during the year 2015-2020.

Material and Methods:
Study site: Kalesar National Park and Adjoining area was selected for taxonomic studies and exploration of floristic diversity. It is locaed in the foot hills of Shiwalik ranges of great Himalayas. On map it is situated between 30°18' to 30° 27' North latitude & 77°18' to 77° 35'

East longitude. It is a part of Yamuna Nagar District of Haryana, sharing boundary with three States ie., Himachal Pradesh, Uttranchal & U.P. Yamuna Nagar has an area of 1,756 square kilometres. Geologically speaking, the Shiwalik belong to the tertiary deposits of the outer Himalayas, and are chiefly composed of low sandstone and conglomerate hills, the solidified and upheaved detritus of the great range. Shiwalik system takes its name from Shiwalik hills of Haridwar region between the Ganga and the Yamuna rivers. Kalesar National Park is named due to the Kalesar (Shiva) temple located in protected area. The park was declared as National Park on 8th December 2003 having an area of 11570 acres. Just adjacent to the National Park is Kalesar Wildlife Sanctuary and it was notified on 13th December 1996, having an area of 13209 acres. (Fig.1).

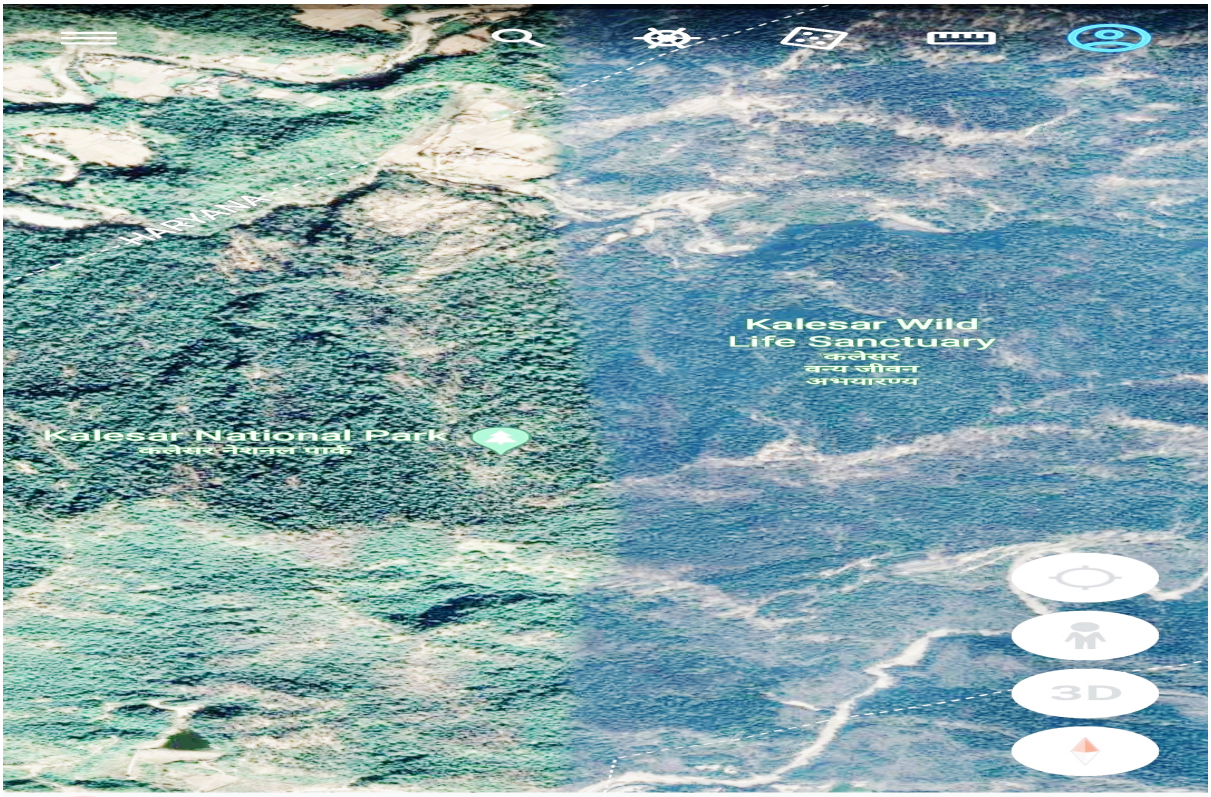

Figure 1: Google earth satellite image showing exact location of study site.

Methodology:

Many field surveys were conducted in Kalesar National Park and Adjoining area in different seasons during 2015-20. Standard methods were adopted for collection of voucher specimens, preservation, and for the collection of ethnobotanical information [14]. Photographs of plants were taken in natural habitat. The ethnobotanical data (use of plant, plant parts used, local name) was collected through interviews and discussions with herbalists, farmers, spiritualist, in study area. Majority of informant's were belonged to old age group, who have a very long association with usage of plants. Specimens of all species were identified with the help of available literature [9], [10], [12], [13]. Voucher specimens were prepared and deposited in the herbarium of Botany Department, Kurukshetra University, Kurukshetra (Haryana) India. For preparing the description collected plant materials were critically examined under stereo zoom

dissecting microscope to record the morphological characters as well as variations available within the species; photographs of each species and field notes were also considered for this purpose. Indented dichotomous keys were prepared for species. The keys are artificial and mostly based on morphological characters. Updadate nomenclature by using recently accepted names after consulting various authentic works like revisions and floras. Different websites like The International Plant Names Index (IPNI), Germplasm Resources Information Network (GRIN), Plant of the world online (POWO), International Legume Database and Information Service (ILDIS), Tropicos, Encyclopedia of Life (EOL) and The Plant List were consulted to update the nomenclature. New records were recorded after comparison of present findings with the previous works in same region (Duthie, 1903-1929; Nair, 1978; Jain *et al.,* 2000).

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Results and Discussions

During present study of Kalesar National Park, 55 species of wild plants are documented for ethnomedicinal value. These wild plants are used by the Rural peoples and traditional healers for the treatment of various diseases like diarrhoea, dysentery, male and female sexual disease, cardiovascular disease, headache, asthma, toothache, acne, diuretic, diabetes, gonorrhoea, skin disease, kidney stone, hyperthyroidism ,piles and cancer (Table-1).

Table 1: Shows the recent accepted taxonomic name of wild plants along with their ethnomedicinal uses for various diseases.

S.NO	**BOTANICAL NAME**	**FAMILY NAME**	**LOCAL NAME**	**HABIT**	**PLANT PARTS USED**	**ETHNOBOTANICAL USES**
1.	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Mohini	Tree	Bark	Powder is used to treat heart disease and body pain. Young twigs to relief toothache.
2.	*Crataeva nurvala* Buch.-Ham.	Capparaceae	Barna	Tree	Bark	Used for enhancing appetite and to treat urogenital disorders.

3.	*Terminalia arjuna* (Roxb. *ex* DC.) Wight & Arn.	Combretaceae	Arjun	Tree	Bark	Decoction is used to treat hypertension, cardiovascular disease, diarrhoea, dysentery and leucorrhoea.
4.	*Shorea robusta* Gaertn.	Dipterocarpaceae	Sal	Tree	Bark	Powder is taken with milk to treat tonsils, general weakness, ear push, throat pain and gum is given to treat calf dysentery.
5.	*Bridelia retusa* (L.) A.Juss.	Euphorbiaceae	Kaji	Tree	Bark	Powder is used to treat viral fever.
6.	*Mallotus philippensis* (Lam.) Müll.Arg.	Euphorbiaceae	Rohini	Tree	Bark	Young twigs are used as tooth stick to treat pushy gums and bark is effective against scabies, brain haemorrhage and fungal infections.
7.	*Acacia leucophloea* (Roxb.) Willd.	Leguminosae	Ronjh	Tree	Bark	Decoction is given to treat diarrhoea, dysentery, wounds, bronchitis, and gastric troubles and also used to improve immune system.
8.	*Acacia auriculiformis* Benth.	Leguminosae	Australian Babul	Tree	Bark	Used for washing hairs.
9.	*Cassia javanica* L.	Leguminosae		Tree	Bark	Powder is used to treat gonorrhoea, leprosy and chronic fever.
10.	*Acacia catechu* (L.f.) Willd.	Leguminosae	Kattha	Tree	Bark	Young branches are used as tooth stick and bark powder is used in anaemia.
11.	*Acacia nilotica* subsp. indica	Leguminosae	Kikar, Babul	Tree	Bark	Decoction is used to treat urogenital diseases.

	(Benth.) Brenan					
12.	*Saraca asoca* (Roxb.) Willd.	Leguminosae	Sita Ashok	Tree	Bark	Decoction used as tonic for menstrual disorders and to treat bloody dysentery and diabetes.
13.	*Soymida febrifuga* (Roxb.) A. Juss.	Meliaceae	Rakta rohan	Tree	Bark	Powder is used to treat diarrhoea, dysentery, decoction, vaginal infections and rheumatism.
14.	*Ficus microcarpa* L.*f.*	Moraceae	Kama rup	Tree	Bark	Used to treat rheumatism, mouth ulcers, and skin diseases and burning sensation.
15.	*Ficus benjamina* L.	Moraceae	pukar	Tree	Bark	Decoction is used as a hepatic tonic and to treat rheumatism.
16.	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	Kaim	Tree	Bark	Powder is taken with milk to treat leucorrhoea, burning sensation and muscle pain.
17.	*Casearia tomentosa* Roxb.	Salicaceae	Safed karai	Tree	Bark	Used to treat dropsy.
18.	*Bauhinia variegata* L.	Leguminosae	Kachnar	Tree	Bark, Root	Bark is used to treat ulcers, leprosy and roots used as carminative.
19.	*Tectona grandis* L.*f.*	*Verbenaceae*	Sagwan	Tree	Bark, Wood, Flower	Bark is used to treat bronchitis and flowers are effective in urinary troubles and biliousness. Wood is used for making furniture, doors and windows.
20.	*Desmostachya bipinnata* (L.) Stapf	Poaceae	Dabh	Herb	Culms	Used to treat urogenital disorders, asthma, bronchitis and dysentery.
21.	*Koelreuteria elegans* (Seem.)	Sapindaceae		Tree	Flower	Dry flower powder used to cure conjunctivitis.

	A.C.Sm.					
22.	*Pterospermum acerifolium* (L.) Willd.	Sterculiaceae	Kanak Champa	Tree	Flower	Effective against leprosy.
23.	*Centaurium pulchellum* (Sw.) Druce	Gentianaceae	Barik chirayata	Herb	Flowers	Used to treat appetite loss, fever, high blood pressure, kidney stones, diabetes, indigestion, worms, inflammation and snake-bite.
24.	*Carissa macrocarpa* (Eckl.) A.DC.	Apocynaceae		Tree	Fruit	Used for making pickle.
25.	*Cordia dichotoma* G.Forst.	Boraginaceae	Lasuda	Tree	Fruit	Used as an astringent, anthelmintic, diuretic, and demulcent.
26.	*Terminalia bellirica* (Gaertn.) Roxb.	Combretaceae	Baheda	Tree	Fruit	Dry fruits powder is an important part of "Trifala Churna", which is very potent drug against constipation.
27.	*Phyllanthus reticulatus* Poir.	Euphorbiaceae	Nilbadi	Shrub	Fruit	Branches are used for making baskets. Fruits are edible.
28.	*Cassia fistula* L.	Leguminosae	Amaltas	Tree	Fruit	Ripe fruit decoction is taken orally to treat asthma, bronchitis, cough, cold, blood purifier, constipation and ripe fruits also used as purgative
29.	*Ficus palmata* Forssk.	Moraceae	Anjiri	Tree	Fruit	Fruits are edible, used to treat general debility, anaemia and digestive disorders.
30.	*Ficus auriculata* Lour.	Moraceae	Fagoora	Tree	Fruit	Edible.
31.	*Aegle*	Rutaceae	Pattha	Tree	Fruit	Ripe fruits are used as

	marmelos (L.) Corrêa		r bel			coolant in summer stroke.
32.	*Mimusops elengi* L.	Sapotaceae	Molsh ree	Tree	Fruit	Used to cure diarrhoea, dysentery and cholera.
33.	*Solanum americanum* Mill.	Solanaceae	Mako h	Herb	Fruit	Ripe fruits are eaten as liver tonic, aphrodisiac and also used to treat cardiovascular disease, urogenital disorders, and leucorrhoea.
34.	*Physalis minima* L.	Solanaceae	Rasbh ari	Herb	Fruit	Ripe fruits are eaten by villagers to treat burning sensation of urinary track, diuretic, joint inflammation, blood purifier, skin disease, pimples, and liver tonic.
35.	*Tribulus terrestris L.*	Zygophyllace ae	Gokhr u	Herb	Fruit	Used to treat painful micturition, inflammation of testis and prostate cancer.
36.	*Ficus racemosa* L.	Moraceae	Goola r	Tree	Fruit, Bark	Bark powder is taken with milk to treat diabetes, leprosy, small pox, leucorrhoea and fruits are eaten for balancing hormones.
37.	*Ficus semicordata* Buch.-Ham. *ex* Sm.	Moraceae	Bhum i goolar	Tree	Fruit, Bark	Bark and fruit is used to treat leprosy.
38.	*Ficus virens* Aiton	Moraceae	Pilkha n	Tree	Fruit, Bark	Fruits are edible. Bark powder is used to treat leucorrhoea.
39.	*Helicteres isora* L.	Sterculiaceae	Maro d phali	Tree	Fruit, Bark	Bark and fruit is used to treat constipation, intestinal parasite, diarrhoea and dysentery.
40.	*Cryptolepis dubia*	Asclepiadace ae	Kala bel	Climb er	Fruit, Bark,	Latex is used to cure wounds, roots bark for

	(Burm.*f.*) M.R.Almeida				Root, Latex	paralysis and fruits to treat rickets.
41.	*Woodfordia fruticosa* (L.) Kurz	Lythraceae	Dhwai	Shrub	Fruit, Flower	Dried flowers are used as astringent, stimulant. Dried Fruits are effective against haemorrhages, menorrhagia and seminal weakness.
42.	*Flueggea virosa* (Roxb. *ex* Willd.) Royle	Euphorbiaceae	Dalme	Shrub	Fruit, Root	Fruits are used as antidote of snake bite and roots to treat gonorrhoea, pneumonia and syphilis.
43.	*Averrhoa carambola* L.	Oxalidaceae	Kamrakh	Tree	Fruit, Root	Ripe fruits are edible stimulates appetite and roots powder is used to treat diabetes.
44.	*Lactuca virosa* Habl.	Compositae	Salad	Herb	Latex	Latex is used as diuretic, sedative and to cure leprosy, cough and asthma
45.	*Euphorbia royleana* Boiss.	Euphorbiaceae	Danda	Shrub	Latex	Latex is used to expel intestinal worms.
46.	*Argemone mexicana* L	Papaveraceae	Pili katili	Herb	Latex	Plant latex is directly applied on skin affected by ring worm and latex also used for healing wound.
47.	*Rungia pectinata* (L.) Nees	Acanthaceae	Pittapapda	Herb	Leaf	Leaf juice is used as hepatic tonic and effective against constipation.
48.	*Acorus calamus* L.	Araceae	Bach	Herb	Rhizome	Rhizomes used to cure epilepsy, dysentery and abdominal pain.
49.	*Xanthium strumarium* L.	Compositae	Kutta, chota gokhr	Herb	Shoot	Decoction of young shoots is used to treat urogenital disorders and

			u			syphilis.
50.	*Leucaas lanata* Benth.	Lamiaceae	Gopha	Herb	Shoot	Young shoots boiled with water are used for gargles during throat sores.
51.	*Solanum torvum* Sw.	Solanaceae	Bhurat	Shrub	Shoot	Decoction of young shoots for cough, used for the treatment of liver and spleen enlargement.
52.	*Vitex negundo* L.	Verbenaceae	Nirgundi	Shrub	Shoot, Flower	Young shoot (with flowers) decoction is taken to treat, pneumonia, cold, asthma, bronchitis, headache, body ache.
53.	*Crotalaria retusa* L.	Leguminosae	Ghunghunia	Herb	Whole plant	Decoction is used to cure scabies and impetigo.
54.	*Delonix regia* (Hook.) Raf.	Leguminosae	Gulmohar	Tree	Whole plant	Planted as an avenue tree.
55.	*Malvastrum coromandelianum* (L.) Garcke	Malvaceae	Kharenti	Herb	Whole plant	Decoction of plant is used as diaphoretic agent.

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