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PLANT SPECIES USED BY LOCALS AS ETHNO-MEDICINE IN KUMAUN REGION OF WESTERN HIMALAYA (INDIA)

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ABSTRACT: The present investigation carried out in six villages of Almora district of Kumaun Himalaya regarding mild and native ethno-medicinal plants which were used by locals in their own traditional health care system. This study reveals the status of ethno-medicinal plants and their importance preserved by locals of Kumaun region. During the study it was observed that 47 species of medicinal plants belonging to 38 genera and 28 families were being used in ethno medicine by locals with advice of Vaidhyas and experienced persons of the region since long time. The main purpose of this study was to document the indigenous knowledge of Vaidhyas and other experienced persons of the area regarding the use of ethno-medicinal plants, their conservation and imparting this knowledge with younger generation. Because, the indigenous knowledge of local flora are being eroded in younger generation, therefore the present study may help in fulfill this gap respectively.

INTRODUCTION: Western Himalaya is a reservoir of many natural resources, of which vegetational aspect is predominant. Its unique setting within the Himalayan region possesses luxuriant and varied vegetation, most of which is important from nutritional, aesthetic and medicinal view point [1].

Locals of Western Himalayan region are highly depending on natural resources such as fuel fodder, timber and NTFPs. Among these resources, herbal as well as ethno-medicinal plants are one of the most important NTFPs, which have been playing an important role in the curing the health of locals since long time.

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Almost all poor families depend on traditional ethno-medicinal plants due to lack of medical facilities in rural areas. Today about 65% of Indian population depend on the traditional system of medicine [2]. They diagnose and cure different diseases through their own traditional knowledge [3].

Extensive surveys and literature reveals that considerable work has been done on medicinal plants and their ethno-medicinal uses in prospective of Himalayan region: The study on ethnobotanical uses of plant in Garhwal Himalaya [4, 5, 6, 7]; Ethnobotany of Kumaun Himalaya [8]; indigenous knowledge of medicinal plants and wild edibles among three tribal sub-communities of Central Himalayas [9]; ethnomedicinal plant diversity in Kumaun Himalaya [10]. Similarly the indigenous knowledge system of high altitude society has been reported of Kumaun Himalaya [11]; threat status of rare species of Kedarnath Wild life sanctuary with economic uses and medicinal plants traditional health care knowledge of Vaidhyas, palsi and

others [12, 13.]; recorded ethnobotanical uses of plants by Bhotiya tribal in Niti valley [14]; Endorsing the declining indigenous ethnobotanical knowledge system of Seabuckthorn in Central Himalaya [15]. But in present scenario, continuous exploitation of these herbal reserves or natural resources and traditional knowledge is depleting day by day in younger generation due to lack of proper interaction with Vaidhyas and other knowledgeable persons. Therefore, the present study has been undertaken to explore the more traditional knowledge on ethno-medicinal plants and their uses with the help of Vaidhyas and other experienced persons and expected outcome will be tried to share with younger to conserve traditional knowledge as well as natural and herbal reservoir in point view of future perspective.

MATERIALS AND METHODS: The study area Almora district located at 79^0 44' 35" E longitudes and 29^0 32' 55" N latitudes. The total geographical area of the district is around 3090 sq. km. The present study was conducted in six villages namely Dhora, Jalna, Bakh, Palna, Anrikot and Cheda of Almora district. The information was gathered through personal interview with local Vaidhyas and experienced persons of the area. The information was taken after long session of discussion about ethno-medicinal plant and their uses, using parts and using procedure through questionnaire with the help of these persons. After gathering the complete information on ethno- medicinal plants the data were analyzed and compiled with related literature and then the report was documented.

RESULTS AND DISCUSSION: A total 47 plant species (31 cultivated and 16 wild) were used in traditional ethno-medicine belonging to 38 genera and 28 families which of 17 trees, 4 shrubs, 20 herbs and 6 climbers. Most of them were commonly cultivated in crop filed; some were found in village surrounding, forest area and wasteland. Among these plant species, the maximum plants were used for cough and cold, skin diseases, weakness, heart diseases followed by asthma, diabetes, blood pressure, boils and pimples, fever, gastric problems, burn, cuts and wounds, diarrhea, stomach syphilis, stone problems and teeth pain, while few species were used in diabetes, indignation, dysentery, sunburn, ulcer, enhancement of memory power, stress, sun and heat stroke, hair diseases, stomach disorder followed by antipyretic problem, bone fracture, weight loss, eye problems, pneumonia, measles, vomiting, urinary problems, dyspepsia, vesicle, antitoxic and internal wounds respectively. Plants used by locals of Almora district with the advice of Vaidhyas and other experienced persons were tabulated in alphabetical order of family, botanical name, uses and using procedure (**Table 1**).

TABLE 1 PLANT SPECIES USED IN ETHNO-MEDICINE BY LOCALS OF ALMORA DISTRICT OF KUMAUN HIMALAYA

Botanical name	Local name	LF	Uses and using procedures
Alliaceae			
Allium sativum L.	Lahsun	HR	Paste of blub cooked with clarified butter of cow's and applied on joint pain. Fried bulb taken during gastric problems.
Allium cepa L.	Piyaz	HR	Extract of the dried bulb used for diabetes and jaundice.
Anacardaceae			
Mangifera indica L.	Aam	TR	Cotyledons made into powder, mixed with kala namak (black salt) and gives to patient suffering from asthma, cough, stomach disorders, skin diseases.
Apiaceae			
Coriandrum sativum L.	Dhania	HR	One-two teaspoons of coriander leaf juice, added to fresh butter & milk and taken internally helps in treating indigestion, nausea, dysentery, hepatitis ulcerative colitis, and typhoid fever.
Asparagaceae			
Asparagus racemosus Willd.	Kairu/satawar	SH	Dry root powder mixed with cow's milk and boiled water is fed to women to improve the stamina and also during antipyretic problems.
Asphodelaceae			
Aloe barbadensis Mill.	Aloevera	HR	Extracted jell or juice of aloe-Vera leaves applied on skin during sunburn, burns, pimples and for glowing the skin and juice is taken during weakness and heart diseases.

Asteraceae			
Tagetes arecta L.	Genda	HR	Powder or paste of genda's flowers used to combat the problem related to boil, pimples and ulcer.
Berberidaceae			
Berberis asiatica Roxb.ex.DC.	Kilmor	SH	The root powder mixed with hot water and cow's milk and given during the diabetes and jaundice problems.
Bombacaceae			
Bombex ceiba L.	Semal	TR	Calyx used as vegetable and given to cure heart disease.
Cannabaceae			
Cannabis sativa L.	Bhang	HR	Fried seed powder is given with boiled water to treat cough and cold, asthma and to expel intestinal worms. Extract of leaves as well as leaf paste is applied on cuts, wounds and bone fracture.
Cucurbitaceae			
Cucumis sativus L.	Kakadi	CL	Cucumber is excellent for rubbing over the skin to keep it soft and white. It is cooling healing and soothing to an irritated skin, whether caused by sun.
Lagenaria vulgaris Ser.	Lauki	CL	Lauki juice is given during weakness, gastric problems and effective for weight loss.
Momordica charantia L.	Karela	CL	Extracted juice is also used to treat skin problems like psoriasis, generally good for skin health and given during diabetes.
Ericaceae			
Rhododendron arboretum Smith	Burash	TR	Extracted juice or squash of flowers is given during the heart problems and effective in diarrhea.
Euphorbiaceae			
Phyllanthus emblica L.	Anwala	TR	Dry fruit powder is used during digestive problem and fresh fruit is used as increment of eyesight and prevention of hair diseases.
Fabaceae			
Macrotyloma Uniflorum Lam.	Gahat	HR	Soup of gahat seed's is given during cough and cold and stone problem.
Trigonella foenum-graecum L.	Methi	HR	Powder of dry seed and leaves mixed with hot water or tea and given during cough and cold and fever.
Gramineae			
Eleusine coracana L.	Maduwa	HR	Bread & Haluwa is given during cough and cold and maintain for body temperature during winter season.
Hordeum vulgare L.	Jau	HR	Bread of Jau flour is given for patient to cure diabetes and asthma.
Echinochloa frumentacea Roxb.	Madira	HR	Medley or soup given with cow's curd during jaundice and pneumonia.
Setaria italica L.	Kauni	HR	Medley given with cow's curd to cure measles.
Juglandaceae			
Juglans regia L.	Akhrot	TR	The branch and bark used for cleaning of teeth and paste of leaves applied on teeth during pain; seed oil is valuable for enhancing the memory power.
Lamiaceae			
Mentha arvensis L.	Pudina	HR	Juice of leaves given during indigestion and gastric problem, headaches, cough sore throat, vomiting and common cold.
Ocimum sanctum L.	Tulsi	HR	Seed or leaf paste mixed with sterilized water or cow's milk and given during asthma, cough and cold; leaves boil with water and used as green tea, which effective in reducing stress.
Lauraceae			
Cinnamomum tamala Buch-Ham.	Tejpatta	TR	The leaves are used in infections of the respiratory and urinary tracts, tea of barks and leaves effective during diabetes, gastric and ulcers.
Malvaceae			
Hibiscus rosa- sinensis L.	Gurhal	SH	Extract of flowers, root and leaf powder are used in regulate menstruation; stimulate blood circulation, liver disorders and high blood pressure.
Menispermaceae			
Tinospora cordifolia Willd.	Giloi	CL	Stem powder mixed with honey or cow's milk and given during blood pressure, cough and cold, weakness.

Moraceae			
Ficus religiosa L.	Pipal	TR	Ash of leaves mixed with a little amount of mustered oil and applied on cuts and wounds; burning part of body.
Myricaceae			
Myrica esculenta Buch.-Ham.	Kaphal	TR	Bark paste applied on wounds, joint pains and paralysis; fresh fruits highly effective in controlling blood pressure and heart problem.
Myrtaceae			
Psidium guajava L.	Amrood	TR	Juice of fresh leaves used in digestive disorders like diarrhea and vomiting, fruit is used in controlling blood pressure.
Orchiddaceae			
Bergenia stracheyi (Hook.f.&Thom.) Engl.	Silfari	HR	Root powder as well as fresh root juice mixed with hot water or milk and given to the person suffering from stone problem and weakness; root paste applied on cuts and wounds.
Paplionaceae			
Glycine max L.	Kala Bhatt	HR	Boiled seeds and its decoction are given to cure dyspepsia, diabetes, cough and cold and stone problem.
Punicaceae			
Punica granatum L.	Anar	TR	Fruit juice is used in diarrhea, fever and weakness.
Rosaceae			
Prunus armeniaca L.	Khubani	TR	Golden kernel oil can be used liberally in most body care recipes, especially kind to damaged or dry skin.
Prunus persica Benth.-Hook.	Aru	TR	Paste of leaves as well as carnal oil used in cure of skin as eliminating spot, boils and pimples and skin scabies: kernel oil highly effective in enhancing memory power, branches & barks useful in cleaning teeth as well as during teeth pain.
Pyrus pashia Buch.-Ham. ex D.Don	Mehal	TR	Young fruit juice is used as eye drop during eye infection and fruit paste applied on burn.
Rutaceae			
Citrus aurantifolia L.	Kagji neeboo	STR	Juice of Kagji neeboo mixed with water after adding a pinch of salt and sugar given during summer season to cure dysentery, sun or heat stroke and remove the syphilis of stomach.
Citrus limon L.	Nimboo	TR	Epicarp of the fruit made into powder mixed with a small amount of water and used as facial purposes and also cure skin diseases.
Citrus sinensis L.	Malta	TR	Epicarp of the citrus fruits made into powder mixed with small amount of water and used as facial powder and also used to cure skin diseases; fruit juice is given for remove the syphilis of stomach.
Zanthoxylum armatum DC.	Timur	SH	Bark, leaf and seed powder used in toothache; branches used for teeth cleaning during the gum troubles.
Solanaceae			
Lycopersicon esculentum Mill.	Tamatar	HR	Pulp paste applied on skin disease and sliced fruits are applied quick and easy aid treatment for burn, scalds and sunburn.
Solanum tuberosum L.	Aaloo	HR	Tuber paste is applied during burn, which is also highly effective in prevention of vesicle.
Withania somnifera L.	Ashwagandha	HR	Paste of root or stem is applied over the skin as it has antibiotic and antibacterial action, root powder mixed with hot water or cow's milk and given during weakness, diabetes and reducing for stress.
Sapindaceae			
Sapindus mukorossi Gaertn.	Ritha	TR	Seed bark is used as the main ingredient of soaps and shampoos for washing hair, which is highly effective in curing hair diseases.
Vitaceae			
Vitis vinifera L.	Angoor	CL	Fruit juice is given during weakness, diabetes; blood pressure; heart attack and also effective during sunstroke at the day.
Zingiberaceae			
Curcuma domestica Val.	Haldi	HR	Paste of fresh rhizome powder is applied locally on the pimples and boils & paste of fresh rhizome mixed with warm water is given to heal up internal wounds.
Zingiber Officinale Syn.	Adrakh	HR	The juice of fresh rhizome with honey is a remedy for cough and cold; asthma.

Keyes-: TR=tree; STR= Small tree; SH= Shrub; HR= Herb, CL= Climber

CONCLUSION: Medicinal plants were playing a vital role in curing health of locals of Uttarakhand Himalaya. Vaidhyas and other knowledgeable persons have been keeping huge traditional as well as indigenous knowledge about medicinal plants in perspective of their identification, ethno-medicinal uses and using procedures since long time (Table-1). Hence, there is an urgent need to conserve their indigenous as well as traditional through documented literature and proper interaction with younger generation. Because the natural or herbal reservoir of Himalayan region have been depleting day by day due to lack of proper knowledge in younger generation.

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