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ETHNOMEDICINAL PLANTS AND THEIR CONTRIBUTION TO CURE VARIOUS AILMENTS AS HOUSEHOLD REMEDIES IN GARHWAL HIMALAYA, INDIA

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ABSTRACT: The present investigation was carried out in five villages of the marginalized hill area block of Dewal in Chamoli district, regarding the uses of mild and native ethno-medicinal plants, by locals in their traditional health care system. The people residing in this area have been in isolation for centuries and possess good knowledge of phytotherapy. A total of 51 species of medicinal plants (both wild and cultivated) belonging to 30 families and 45 genera are being used in their folk system of treatment (locally known as 'Gharelu Upchar'). These plants are used in crude form to treat various ailments like, cough and cold, stomach problems, skin diseases, dysentery, boils and pimples, anaemia asthma, cuts and wounds, various fevers, bone fractures, kidney/ gall stone problems and other such indispositions (Table 1.1 and 1.2). The main purpose of this study was to document the indigenous knowledge of Vaidyas and other knowledgeable persons of the area about the use of local flora, as household remedies for treating different ailments.

INTRODUCTION: The Indian Himalaya is the home of cultural and biological diversity and a paradise of medicinal plants. In Himalaya, most of the people live in villages and use plants for medicine, food, fodder, fuel, timber, agricultural implements and various other purposes¹. Age old traditional values, attached to the forests and various forest products, have gained tremendous importance in the present century, particularly medicinal plants.

In the Indian Himalayan region, about 1748 species of medicinal plants², 675 species of wild edibles¹, 279 species of fodder², 118 species of essential oil yielding medicinal and aromatic plants³ and 155 species of sacred plants⁴ have been recorded.

The mountain region of Uttarakhand Himalayas is a well known treasure-trove of medicinal plant diversity, since antiquity. Many plant species of this area (having medicinal value) are being used by the local people for curing a variety of ailments⁵. The people of this region also possess vast knowledge of traditional medicine. Medicinal plants have played an important role in the primary health care system of the local people of this Himalayan region⁶. The survey of literature reveals that considerable work has been done on the medicinal plants and their various uses in treating ailments as local remedies in the perspective of Uttarakhand⁷⁻¹⁰. Similarly work has also been done on the indigenous knowledge system of the high altitude society of Kumaun¹¹; ethno-botanical uses of plants by Bhotyia tribal communities in Niti valley¹²; ethno-botanical plant diversity in Kumaun Himalaya¹³; Traditional knowledge on ethnobotanical plant diversity from the Indian Western Himalaya¹⁴.

However, no serious attempts have yet been made to document the traditional medicinal plants used by the people of the marginalized hill area of

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Dewal block as household remedies for treating various ailments. Therefore, the present work has been done on ethno-medicinal plants of this area, their locality and uses in different ailments with particular focus on their procedures of use.

MATERIALS AND METHODS:

Chamoli district is located between 29° 55' 00' & 31°03'45" N latitude and 79° 02' 39" & 80° 03' 29" E longitude respectively with elevation ranges varying between 800 to 8000 meters above sea level. The climate of the district largely depends on the altitude. The total geographical area of the district is around 7520 sq. km. The present study was conducted with ethno-medicinal practices prevalent in five villages (1800-2600msl) of the marginal areas of Dewal Block, in Chamoli district, during the years 2013-2014.

The study area is also home to many of India's most sacred places including the temple of the Hindu Goddess Nanda Devi (Roopkund & Bedni Bugyal) and Latu Devta (Brother of Nanda Devi) temple at Wan Village which attract thousands of pilgrims every year.

The information was gathered through personal interviews with the local Vaidyas and other knowledgeable persons of the area by the first author, with the help of a questionnaire after long

discussions about plants (wild and cultivated) vis a vis listing of plants, their localities, various ethno-medicinal uses and procedure of their use for different ailments as household remedies. After collecting complete information on ethno-medicinal plants, the data were analyzed and compiled along with the available related literature and the report was then documented.

RESULTS AND DISCUSSION: During the course of field investigation it was found that the locals (Vaidyas and other knowledgeable persons) of the marginalized hill area block of Dewal have a vast indigenous practical knowledge of the local flora particularly the medicinal plants and their uses in treating ailments as household remedies. A total of 51 major plant species (21 cultivated and 30 wild) belonging to 38 genera and 30 families are being used as ethno-medicine in different ailments as household remedies by the locals and this is locally known as Gharelu Upchar. Many among these 51 plants are used to cure cough and cold, stomach problems, skin diseases, dysentery, boils and pimples, anaemia and asthma. A few species are also used as remedies for cuts and wounds, fever, bone fractures, stone problems, blood pressure, leucorrhoea and diarrhea, etc. Besides these, some species are also used to treat scabies, eczema, measles, jaundice, gastric problems and diabetes (**Table 1 and 2**).

TABLE 1: CULTIVATED ETHNO-MEDICINAL PLANTS USED IN DIFFERENT AILMENTS AS HOUSEHOLD REMEDIES IN DEWAL BLOCK OF CHAMOLI DISTRICT

Family/Botanical Name	Local Name	LF	Uses and Using procedure
Alliaceae			
<i>Allium sativum</i> L.	Lehsun	HR	Paste of fried tunicated bulb mixed with cow milk butter is applied over joints to relieve pain during arthritis while the fried bulb is taken orally to cure gastritis.
Anacardiaceae			
<i>Mangifera indica</i> L.	Aam	TR	Powdered cotyledons mixed with kala namak are given to patients suffering from asthma, cough, stomach disorders, scabies and other skin diseases.
Apiaceae			
<i>Trachyspermum ammi</i> (L.) Spragne ex Turrill.	Ajwain	HR	Seeds are taken orally with warm water to cure gastric problems, cough and cold. Seeds are boiled with mustard oil and the boiled material is left for five hours. Thereafter, the cooled oil is used to treat boils and pimples.
Asteraceae			
<i>Tagetes erecta</i> L.	Genda	HR	Powder of Genda flowers is used to combat problems related to boils and pimples and even ulcers.
Cruciferi			
<i>Raphanus sativus</i> L.	Muli	HR	Leaves cooked as vegetable are given to anaemic patients, after adding black salt and curd to it.

Fabaceae <i>Macrotyloma uniflorum</i> (Lam.) Verdc.	Gahat	HR	Decoction of gahat seeds is given for curing cough and cold and stone problems.
Gramineae <i>Eleusine coracana</i> L.	Koda/Maduwa	HR	Roti and Haluwa (Pudding) are administered for curing cold and cough and also burning sensation in stomach.
<i>Echinochloa frumentacea</i> (Roxb.) Link.	Jangora	HR	Khichari (Medley) and soup are used to cure jaundice and pneumonia.
<i>Setaria italica</i> (L.) Beauv.	Kauni	HR	Khichari (Medley) is given with cow milk curd to cure measles
Lamiaceae <i>Ocimum sanctum</i> L.	Tulsi	HR	Seed or leaf paste mixed with sterilized water or milk is given for treating asthma, cough and cold and urinary problems. Decoction of leaves is also given during diabetes.
Papilionaceae <i>Glycine max</i> (L.) Merr.	Kala Bhatt	HR	Decoction of seeds is given to cure dyspepsia, diabetes, cough and cold and stone problems.
Polygonaceae <i>Fagopyrum tataricum</i> (L.) Gaertn.	Fafar	HR	Fafar flour roti is given to cure typhoid and dysentery and also for curing weakness (anaemia). Fafar flour on mixing with water and boiling yields a semi solid liquid (jelly mass) which is used as an antipyretic
<i>Fagopyrum esculentum</i> L.	Ugal/Palti	HR	Ugal flour roti or semi solid liquid (jelly mass) is given for curing typhoid, anaemia and dysentery.
Rosaceae <i>Prunus armeniaca</i> L.	Chullu	STR	Food materials cooked in Chullu seed oil are supposed to enhance memory power; the seed oil is applied on skin for curing the skin diseases and also used as wormicide.
<i>Prunus persica</i> (L.) Batsch.	Aru	STR	Food materials cooked in aru seed oil are supposed to enhance memory power. The seed oil is also used to cure skin diseases.
Rutaceae <i>Citrus sinensis</i> Blanco.	Malta	STR	Dried Epicarp of the citrus fruit powdered mixed with a small quantity of water is used as facial powder and also used to cure skin diseases (Scabies, eczema, pimples etc).
<i>Citrus aurantifolia</i> L.	Kagaji neeboo	STR	Juice of Kagaji neeboo mixed with water after, adding a pinch of salt and sugar is taken to cure dysentery, sun strokes or heat strokes during summer season and also removes the syphilis of stomach.
<i>Citrus lemon</i> L.	Neeboo	STR	Epicarp of the fruit made into powder mixed with a small amount of water is used as face powder purposes and also used to cure skin diseases.
Zingiberaceae <i>Zingiber officinale</i> Rosc.	Adrakh	HR	Fresh as well as dried rhizome is chewed to cure cough and cold.
<i>Curcuma domestica</i> Val.	Haldi	HR	Paste of fresh rhizome or 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.

TABLE 2: WILD ETHNO-MEDICINAL PLANTS USED IN DIFFERENT AILMENTS AS HOUSEHOLD REMEDIES IN DEWAL BLOCK OF CHAMOLI DISTRICT

Family/Botanical Name	Local Name	LF	Uses and Using procedure
Apiaceae <i>Angelica glauca</i> Edgew.	Chora	HR	Dried root powder used in dyspepsia and stomachache and ground root is also used in all salty dishes for enhancing flavors.
Asteraceae <i>Saussurea lappa</i> ((Decne.) C.B. Clarke).	Kuttu	HR	Dried root (powder with boiled milk or water is given to cure asthma, dysentery and skin diseases.
Bombacaceae <i>Bombex ceiba</i> L.	Semal	TR	Calyx is used as vegetable and is given to cure anaemia, leucorrhea

			and cardiac diseases.
Cannabaceae			
<i>Cannabis sativa</i> L.	Bhang	HR	Fried seed powder is given with boiled water to treat cough and cold, asthma and also to expel intestinal worms. Extract of leaves as well as leaf paste is applied on cuts, wounds and bone fractures.
Coniferaceae			
<i>Cedrus deodara</i> (Roxb.) Loud.	Devdar	TR	Cedrus oil Extracted from the internodes is used for the treatment of scabies, eczema and measles.
Dipsacaceae			
<i>Morina longifolia</i> Wall.ex DC.	Biskandar a	HR	Root powder mixed with a little amount of water is applied on the boils and pimples daily, till these get cured.
Ericaceae			
<i>Rhododendron arboreum</i> Smith.	Burans	TR	Flower juice mixed with sugar (syrup) is given for treating cardiac problems, arthritis and blood pressure.
Fabaceae			
<i>Bauhunia variegata</i> L.	Kweral	TR	Young flowers are used as vegetable and are also used for treating leucorrhoea and blood pressure.
Fumariaceae			
<i>Corydalis govaniiana</i> Wall.	Bhutkesi	HR	Root powder mixed with milk or sterilized boiled water is used to cure dysentery.
Juglandaceae			
<i>Juglans regia</i> L.	Akhrot	TR	Food material cooked in akhrot oil is used for the improvement of eyesight and memory.
Lamiaceae			
<i>Mentha arvensis</i> L.	Pudina	HR	Fresh juice of leaves mixed with boiled water, after adding sugar to it, is given to cure burning sensation in body, fever and also dysentery.
Lauraceae			
<i>Litsea umbrosa</i> Nees	Chirara	TR	Seed oil is applied locally to cure scabies and eczema.
<i>Cinnamomum tamala</i> Buch-Ham.	Tejpat	TR	Powder of dried leaves and bark is used as a substitute of tea and taken to cure cold and cough. Besides this, the leaves are widely used as a flavoring agent for food.
Liliaceae			
<i>Polygonatum verticillatum</i> (L.) All.	Kanthalu	HR	Powered tuber made into powder and mixed with honey is given to anaemic persons. Tuber powder mixed with mustard oil is applied externally on boils and pimples.
<i>Asparagus racemosus</i> Willd.	Satawari	SH	Dry root powder mixed in cow's milk and boiled water is orally fed to women to improve stamina. And also used as antipyretic.
Menispermaceae			
<i>Tinospora cordifolia</i> (Willd.)-Hook f. & Thomson.	Giloi	CL	Dried powder of giloi stem mixed with kali mirch (black pepper), ginger and clove is used to improve memory and stamina and is also used to treat leucorrhoea.
Moraceae			
<i>Ficus religiosa</i> L.	Pipal	TR	Leaf ash mixed with honey or mustard oil produces a sort of jelly mass which is applied locally on piles, boils and pimples.
Orchidaceae			
<i>Bergenia stracheyi</i> Hook. f. & Thomson.	Silfari	HR	Rhizome powder mixed with honey or milk or water is given to persons suffering from stone problems or jaundice. The rhizome powder mixed with milk is also given for recovery from weakness.
<i>Dactylorhiza hatagirea</i> D.Don.	Hattajari	HR	The root powder is taken with cow's milk to cure leucorrhoea. It is sometimes applied externally on fractured bones.
Polygonaceae			
<i>Picrorhiza kurroa</i> Royle ex Benth.	Kutuki	HR	Dry root powder is taken with water for curing cough and cold, diabetes, asthma, fever, gastric problems, syphilis of stomach and also as an antipyretic agent.

<i>Rheum australe</i> D.Don.	Dolu	HR	Root powder or paste is applied on cuts and wounds. Crushed root mixed with honey is applied on swollen (inflamed) portions of affected parts.
Rannunculaceae			
<i>Thalictrum foliolosum</i> Wall.	Mameri	HR	Root powder is given to cure cough and cold.
<i>Aconitum heterophyllum</i> Wall. ex Royle.	Atees	HR	Root powder (in a small quantity) is given to cure fever, diarrhoea and also used to repel intestinal worms.
<i>Aconitum balfourii</i> Wall. ex Royle.	Meethabis	HR	Root powder mixed with water is applied on carbuncle (precaution: Root paste being poisonous care should be taken, while applying).
Rosaceae			
<i>Prinsepia utilis</i> Royle.	Bhenkal	SH	Seed oil applied externally on eczema and painful rheumatic part of the body. The oil is also applied on "Nasoor" (a kind of disease in which continuous pus secretion takes place) to prevent suppuration. Root extract is also given to cure "syphilis" (burning sensation) in the stomach and also to reduce body temperature during fever.
<i>Rubus lasiocarpus</i> Sm.	Kala Hinsalu	SH	Fresh juice of roots mixed with sugar (to reduce bitter taste) is given thrice in day to cure syphilis or burning sensation in stomach.
<i>Potentilla fulgens</i> L.	Bajradanti	HR	Fresh juice of roots mixed with boiled water is given to children to cure stomach pain. Adding a pinch of black salt in the fresh root juice eradicates intestinal worms in children.
Rutaceae			
<i>Zanthoxylum armatum</i> DC., Prodr.	Timur	SH	Seed powder or bark powder or sometimes the mixture of both seed and bark powder is used for cleaning teeth. The paste of the bark and seed powder is also used to cure skin diseases.
Symplocaceae			
<i>Symplocos chinensis</i> Lour.	Lodh	STR	Wheat flour mixed thoroughly with honey is smeared over the area of fractured bones and bandaged using splints of thick lodh bark tied with the fiber of bichhu or hemp.
Ulmaceae			
<i>Carpinus viminea</i> Hook.	Chimkhari k/Chamar maya	TR	Wheat flour thoroughly mixed with honey is smeared over the area of fractured bones and bandaged using splints of thick chimkharik bark tied with the fiber of bichhu or hemp.
Utricaceae			
<i>Urtica parviflora</i> L.	Choti bichhu/kan dali	HR	Tender shoots are used as vegetable. Clove and black pepper powder mixed with its leaf juice is taken orally to relieve and cure cough and cold, asthma, pneumonia, jaundice. Also given as tonic for recovery from weakness.

Abbreviations: TR=tree; STR= small tree; SH= shrub; HR= herb; CL= Climber

CONCLUSION: The marginalized hill area of Dewal block is a reservoir of an enormous natural floral and faunal wealth. The local inhabitants of this area living in the vicinity of the forests possess vast practical knowledge on indigenous flora about its ethnomedicinal and other uses. They depend on folk medicine and household remedies (Gharelu Upchar) to a great extent. They use the local flora with the help of Vaidyas or other knowledgeable persons as ethno medicine for treating various ailments as supplementary options or in lieu of modern medicine due to lack of the availability of the latter.

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