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INVENTORY OF THE PLANTS USED BY THE TRIBALS (GUJJAR AND BAKARWAL) OF DISTRICT KISHTWAR, JAMMU AND KASHMIR (INDIA)

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ABSTRACT

The use of the medicinal plants represents a long history of human interaction with the environment. The survival of the human population on earth planet is dependent on the survival of other organisms, particularly plants. The varieties of living organisms in wild and domesticated form is the source of all the needs like food, medicines, clothing and housing, much of the cultural diversity and most of the intellectual and spiritual inspiration. The value and importance of traditional knowledge of the medicinal plants are being increasingly acknowledged all over the world. The study of the traditional knowledge of plants is carried out from the knowledge used by the tribal community (Gujjars and Bakarwal) of Kishtwar District of Jammu and Kashmir to cure different diseases. The Gujjars and Bakarwal contribute the major segment of the population of the study area, and live in neighboring forest for their purpose. The primary occupations of the Gujjar and Bakarwal tribes are rearing the cattle, and hence they migrate from one place to another place. They make use of the medicinal plants to cure different ailments. The plants part used for medicinal purpose by tribal's are leaf, roots, bark, flower, fruit, rhizome, tuber, wood etc. while in some of the cases the whole plant is used. The herbal preparation used by the tribal community is to treat different ailments like respiratory diseases, infections, gastro-intestinal problems, joint pain, skin problems, diarrhea. dysentery, cut and wounds, heart problems etc. The preparation methods include decoction, juice, oil, paste, powder, extract, smoke and even raw(unprocessed).

KEYWORDS: Medicinal Plants, Tribals, Traditional Knowledge.

Ethnobotany came into being when earliest man observed animals eating certain plants, and he gathered and hunted for his food, and for healing his wounds or sought cover from rain and hailstorm. This knowledge got wider use and success in experiments on humans and led to our recognized food and medicine (Gupta *et al*., 1982). Thus, on the basis of the uses of the plants, first by animals and latter by human beings, the concept of ethnozoology and ethnobotany emerged, which in turn gave birth to ethnobiology. During the thousands of years of early human existence many natural materials were identified for combating human ailments either by instinct or by intuition, or trial and error (Kaul *et al.,* 1987).As per the district Kishtwar of Jammu and Kashmir is concerned, it is populated by several ethnic groups such as Bakarwal, Gujjars and Shepherds living in different places of Kishtwar district like Bonjwa, Sarthal, Chatroo, Padder, Marwah, Worwan, Drabshalah, Sinthan top. The Gujjars are cow/ buffalo herders and Bakerwals are goat/ sheep herders generally. The Bakerwals are nomadic tribe and high altitude goatherds/ shepherds essentially. Bakerwals lead a lonely and tough life in the high altitude meadows of the Himalayas and the Pir Panjal. Every year, they take their livestock animals high into the mountains, above the tree line to graze in the lush meadows. During the summer, they move from one meadow to other. They are accompanied by their dogs (Bakerwal dogs) to guard the sheep/ goats and their pack animals. Gujjars are generally permanent settlers at the foot hills of Pir Panjal Range (Sharma and Kachroo., 1983). They however move to warm places during harsh winters along with their animals. These ethnic groups have their own knowledge of traditional herbal medicine inherited from their fore-fathers. These medicines are well accepted by the local people since generations have experienced their efficacy in alleviating a variety of diseases. Kishtwar lies 240 km in northeast of Jammu (the winter capital of state) and 284 km southeast of Srinagar (summer capital of state). Most of its area is hilly terrain. It lies in the lap of great Himalayan Pir Panjal range. Kishtwar is popularly known as "Land of Sapphire and Saffron" which is very diverse in all life forms it harbors. In the past, this region used to be an independent hill, later being essentially merged with the state of Jammu and Kashmir in 1821 A D. The Chenab valley lies in this territory at the latitudes of 33^{o} 10/ - 33_{o} 25/ N and longitudes, of 75^{o} 25/ – 76^{o} 10/ E, with an area of about 50 sq km. The climate ranges from temperate to alpine with some sub-tropical elements. About 85% area of district is backward because of the geographical remoteness and main occupation of the people is farming, cattle and sheep rearing. This life style and poor economic conditions force the local populace to use herbal medicine commonly (Kumar and Hamal, 2009).Not only because of the unavailability of the

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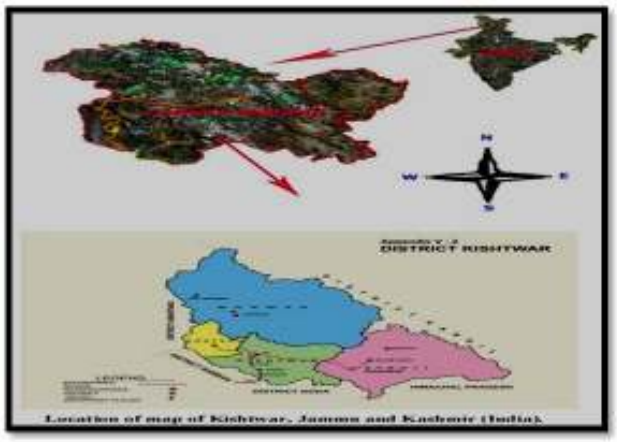
modern health care but also because of the socio-religious beliefs and the faith in pure and curative power of herbs, the local populace use and practice folk medicine at a priority in some regions of the study area. These factors also explain the need for the preservation of ethnomedicinal practices in this region. The main aim of the study was to examine and explore some new important medicinal plants which are being used by the Gujjars and Bakarwalof Kishtwar region. That provides valuable information about the plants on which the tribal community depends. Although a lot of work has been done on the ethnobotany and ethnomedicines in Jammu and Kashmir, India, but as far as Kishtwar district is concerned, it is totally unexplored except for few stray references. Keeping in view the main focus of the present study was to document the medicinal plants used Gujjars and Bakarwal of the district Kishtwar.



MATERIALS AND METHODS

During this period 36 ethno-medicinal plants belonging to 26 families have been reported from the study sites. An inventory of plants and plant products used by the tribals in their day to day life was prepared. Almost all the plants were collected in during flowering and fruiting period with the help of tribals and experienced rural people (Alagesaboopathi., 2011).Parts of the medicinal plants used in the treatment of various ailments and other useful informations were recorded. These secrets could be obtained only by intimate contacts and consistent persuasion. The data obtained from tribal community and villages pertaining local medicinally important plants were carefully recorded. The useful information's of plants was recorded in the field book. The traditional use of the plant under study area was considered only when confirmed from at least 6-8 people.

The personal observations and interrogation is very important to know about the knowledge of tribal people about plants around them. The assistance of reliable old people and herbalists (Hakims) of the particular area is taken in collection of information about parts of the plant of medicinal value, mode of administration, dosages etc. Local names of plants are helpful in referring again to the same plant in the study area. It is always better to have some snaps of the plant material. For this purpose a camera with better focusing should also be taken during the field study. The research work was undertaken with a view to explore the possibilities of utilizing the plant resources which are being used by the tribal people of the district. A total of plant samples/ Specimens along with detailed information on the localities of collection and their uses would serve as a valuable record for future reference and study. These plants have been listed along with the botanical name, local name, family and the traditional knowledge of the plant used by the Gujjar and Bakarwal of the study area. Despite extensive use of ethnobotanical plants by the people of this region, extensive work has not been done as yet on Ethnomedinical and other aspects. Enumeration of species with their traditional uses is described. The plant species studied are arranged in the Table -1, under which each plant is followed by family local names and their traditional use has been written along with the photographs of the ethnobotanical plants as shown in Plate-1 and living style of Gujjar tribes is shown in Plate-2. The use of each plant reported by the tribal people, knowledgeable person's medicine men, Hakims etc. are also included.

RESULTS AND DISCUSSION

Medicinal plants are the local heritage with global importance. World is endowed with a rich wealth of medicinal plants. Herbs have always been the principle form of medicine in India and presently they are becoming popular throughout the developed world, as people strive to stay healthy in the phase of chronic stress and pollution, and to treat illness with medicines that work in connection with the body's own defence (Gaur.,1999). It is interesting to record that the association between incidence of certain diseases and availability of curative herbs in the surroundings has been positive as revealed in a microlevel research in district Kishtwar. Thus it appears that the ethnic populations are the repositories of knowledge of herbal medicine. This is the reason an attempt has been made to study some

ethnomedicinal plants of the Kishtwar district used by Gujjars and Bakarwal tribes.Due to immense use by specialized herbal healers and rural communities, medicinal plants are now emerging as important bio-resources (Swami and Gupta.,1998). For curing ailments like headache, diarrhea, chronic fever, general weakness, cough, stomach pain, wounds, abdominal pain, burns, swellings, dysentery, boils, eye diseases etc., and several other common diseases which are prevalent in this area. Many of the important medicinal plants were used by the tribal communities (Table-1). During the research work, it was discussed that the tribal inhabitants of the Kishtwar district are using the plants to treat a variety of ailments. It is essential to explore the important medicinal plants of the areas which are still un- or underexplored, so that a true picture of the floristic composition may be put on record on regional basis, and from that regional data, national record can be compiled.(Khan *et al*.,2011)The survey revealed that the plants mentioned in the research paper are on the verge of extinction in the area of present investigation and hence deserve special and concerned affords for their conservation so that their elimination is prevented (Figure 1 & 2).

Table 1: Traditional uses of forest plants used by Gujjars and Bakarwal tribe

S. No.	Botanical Name	Family	Local Name	Traditional Use
1.	*Portulaca oleracea* Linn	Protulacaceae	Lunar, Lees hakh	Leaf extract is mixed with mustard oil and used as hair tonic. Leaf extract is applied on head to relieve headache and also used for acne.The root is bitter in taste, effective for chronic pain, abdominal pain and rheumatism.
2.	*Salvia moorcroftiana* Wall. ex Benth	Lamiaceae	Shekter/ Bandarkoot.	The tribal's give the herb as a remedy for high fever. Root extract is used for skin diseases.
3.	*Rumex nepalensis* Linn	Polygonaceae	Hobul	The leaves of the plant are cooked as wild vegetable. Roots of the plant are used against insect bites and cuts. The roots of the plant are used as a remedy for hair loss.
4.	*Taraxacum officinale* (L) Weber ex F.H. Wigg	Asteraceae	Handri	Flower extract mixed with lemon juice is taken to cure fever. The herb is used as a wild vegetable and extensively exploited for the same during the spring when there is scarcity of the cultivated vegetables in higher altitudes; The plant is considered as highly nutritious and given to the women after delivery.
5.	*Urtica dioica* Linn	Urticaceae	Soi	Rheumatism:-The leaves are crushed and a paste is made in mustard oil and applied on joints. The leaves are crushed and extract applied on hairs and act as anti-dandruff.
6.	*Viccia sativa* Linn	Fabaceae	Mataroo	The poultice made from the whole plant is externally applied twice a day for 10 days against Skin abrasions.
7.	*Rumex hastatus* Linn	Polygonaceae	Chuch	The leaves of the plant are rubbed against the sting of *Urtica dioica.* Leaves are applied on wounds and cuts also.
8.	*Digetalis purpurea* Linn	Scorophulariaceae	Loshzata	The herb is given to the patients suffering from cardiac problems. Leaf paste applied to sores and wounds

9.	*Morus serrata* Linn	Moraceae	Tul	The leaves of the plant are lopped for fodder; Fruit of the plant is edible. The wood of the plant used as fire wood.
10.	*Fritillaria roylei* D.Don	Liliaceae	Shethkar	The plant is used in many folk medicines, the tribal's of Kishtwar district use the plant cures many diseases. The extract of the bulb is used as an anti pyretic.
11.	*Ficus palmata* linn	Moraceae	Fog	People suffering from long illness are advised to take its fruits. It is easily digestible and good for health. The fruits are aromatic and delicious, astringent, diuretic
12.	*Tulipa stellata* Hook	Liliaceae	Cur Posh	Bulbs of the herb are eaten and are considered as good heart tonic.
13.	*Cydonia oblonga* Mill	Rosaceae	Beeeh/ Bom Chunth	The seeds are chewed to cure sore throat; the fruit of the plant is edible at maturity; Leaves, buds and bark are astringent. Fruits are cardiac stimulant, tonic and expectorant
14.	*Datura stramonium* Linn	Solanaceae	Datur Boul	Seeds of the plant are collected at maturity. The dried seeds are crushed and mixed with mustered oil. The preparation thus obtained is stored. The prepared is used and applied externally on the ailing joint to relief pain. The seeds are crushed and are made into powder is mixed with mustered oil to make paste and is applied to hair at bed-time for 15-20 days as the it act as anti dandruff
15.	*Digitalis lanata* Ehrh	Plantaginaceae	Buth Posh	The herb is given to the patients suffering from cardiac problems
16.	*Euphorbia helioscopia* Linn	Euphorbiaceae	Duduj	The latex of the plant is applied on skin eruptions to get rid of them. Plants are made into paste and used for healing of wounds. The roasted seeds are given against cholera.
17.	*Fragaria nubicola* Lindl. ex Hook. F	Rosaceae	Sakhvan	The rhizome of the plant is used as a tea substitute along with the bark of *Taxus baccata;*The fruits are aromatic and delicious, astringent, diuretic. Rhizome used assubstitute of tea after grinding. Leaf infusion is used against diarrhea.
18.	*Iris kashmiriana* Baker	Iridaceae	Kabriposh/ Sosan	The nomads and the shepherds when more to the higher altitude with their cattle herd during the summer season use rhizomes of the plant. Fresh rhizomes are applied for the relief from the joint pain. Flowers are preferred by the tribals for their antiseptic value. Flower paste is applied to infectious eye.
19.	*Juglans regia* Linn	Juglandaceae	Dond	Nuts are consumed by people and bark of the tree is used for cleaning teeth and in the process lips getcoloured.
20.	*Malwa neglecta* Wallr	Malvaceae	Sochaloo	The decoction of leaves is used as a laxative. The crushed roots in water are given to the cattle to facilitate detachment and expulsion of placenta after delivery.
21.	*Mentha longifolia* (L)	Lamiaceae	Fatineh	The leaves are crushed and an extract prepared with warm water. The extract is taken to cure asthma.The leaves are made into fine

	Huds.			powder and decoction prepared, decoction of one cup is taken during indigestion and Diarrhoea
22.	*Papaver somniferum* Linn	Papaveraceae	Khashkash	Fruit exocarp is mixed with dalchini and salt and a decoction is prepared and the decoction is given in cough. The seeds are mixed with warm milk and taken early in morning as memory buster.
23.	*Plantago lanceolata* Linn	Plantaginaceae	Isabgol	Poultice of leaves is applied on boils to help ripen and burst them. The leaf extract is effective against bronchitis. Seed extract is mixed with honey and is taken in cough and respiratory disorder.
24.	*Prunus persica* Linn	Rosaceae	Chenan	The seeds are consumed daily with milk in the morning against Constipation.The seeds are powdered and powder mixed with milk and given to children at bedtime as it act as anti-intestinal worm.The flowers of the plant are given in menstrual disturbance. The leaves of the plant are lopped for fodder.
25.	*Adiantum capillus-veneris* Linn	Pteridaceae	Kakash	Leaves of the plant is mixed with cardamom and boiledin water and is given to cure cough, cold, and fever in infants. The dried powdered fronds are mixed with milk and given as a remedy for fever to infants.The paste of rhizome and fronds mixed with the curd is applied for 3-5 days for curing herpes.
26.	*Aesculus indica* (Wall. ex camb.) Hook	Sapindaceae	Gug Kul	Crushed seeds made into paste in lukewarm water are applied on the crackedheels and other skin eruptions; crushed seeds mixed with jiggery (gur) are given tocure loose motion in domestic livestock. Crushed seeds of the plant are also used as a substitute of the detergentsfor washing woolen blankets; Crushed leaves are used for washing hands; Wood of the plant is used as firewood; Leaves are extensively lopped for fodder. The seed are used against rheumatic pain, cracks,leucorrhoea,wounds and diarrhea.
27.	*Rhododendron companulatum* D.Don	Ericaceae	Nichnai	Leaves of the plant are effective as it is given in chronic rheumatism, syphilis and sciatica. Leaves are mixed with tobacco and are used as snuff to cure cold; Leaves are not given to live stocks as the leaves are poisonous..
28.	*Amaranthus caudatus* Linn	Amaranthaceae	Shaval	The seeds are rich in carbohydrates and given to young children. The seeds act as a quick energizer and are preferably used in fast. The seeds are roasted and cooked with milk and relished as “Kheer” or taken assuch.
29.	*Arnebia benthamii* Wall. ex G. Don	Boranginaceae	Kahzaban	The extract is prepared out of the herb and is used in abdominal pain, in high fever and in wormicide. The leaves of the plant are used in fever and heart ailments. The herb is extensively collected from the higher reaches and sold to the crude herbal medicine dealers by nomads.
30.	*Atropa acuminate* Royl ex Lindl	Solanaceae	Brand / Nachan Ariel	The roots of the plant are crushed and made into paste and the paste is applied of the joint pain.Dried flowers and seeds are used to cure tumors and blisters, usually paste ofthe plant used as poultice. Extract is used as external application to relieve pain and internally

				for checkingperspiration. Roots being poisonous applied externally on neuralgia inflammations andrheumatism.
31.	*Berberis aristata* DC	Berberidaceae	Khumblai/ KawDash	The spiny branches of the plant are used in hedges and fencing of the crop plants; The fruit of the shrub is edible and considered as blood tonic; The dried branches are collected and used as fuelwoodfor cooking purposes.
32.	*Bergenia ciliata* Haw. Sternb	Saxifragaceae	Zakhmay Hayat	The root are dried and crushed to make powder, and is mixed with oil and ghee and is applied on the injury;also taken in case of indigestion, dysentery, cough and fever.
33.	*Calendula officinalis* Linn	Asteraceae	Himash bahar	The flowers are dried and crushed to make paste and is taken as anemia and constipation. The leaves are and the roots are edible and are used as blood tonic and blood purifier.
34.	*Foeniculum vulgare* Mill	Umbelliferae	Soanfro	The powdery form of seed is mixed with sugar and then added in warm water and is given in constipation. The seeds are effective and are taken in chest and kidney disorder.
35.	*Robinia pseudoacacia* Linn	Fabaceae	Kikrir	The tree is extensively lopped for fodder; The wood is used as fire wood;grown around the crop fields and wasteland mainly for fodder and firewood.
36.	*Cannabis sativa* Linn	Cannabaceae	Bhungi	Leaf juice is extracted and is applied on the infected portion having dandruff. Plant used as intoxicant, tonic, analgesic, sedativeand antiseptic.

***Portulaca oleracea* Linn**

***Rumex nepalensis* Linn**

***Salvia moorcroftiana* Wall. ex Benth**

***Taraxacum officinale* (L) weber ex F. H.Wigg**

***Urtica dioica* Linn**

***Morus alba*Linn**

***Viccia sativa* Linn**

***Fritillaria roylei* D. Don**

***Rumex hastatus*Linn**

***Ficus carica* Linn**

***Digetalis purpurea*Linn**

***Tulipa stellata* Hook**

***Cydonia oblonga* Mill**

***Datura stramonium* Linn**

***Digitalis lanata* Ehrh**

***Euphorbia helioscopia*Linn**

***Fragaria nubicola* Lindl. ex Hook. f**

***Iris kashmirania* Baker**

***Juglans regia* Linn**

***Malwa neglecta* Wallr**

***Mentha longifolia* (L) Huds**

***Papaver somniferum* Linn**

***Plantago lanceolata* Linn**

***Prunus persica* Linn**

***Adiantum capillus-veneris* Linn**

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***Rhododendroncompanulatum*D. Don**

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***Calendula officinalis* Linn**

***Cannabis sativa* Linn**

***Robinia pseudoacacia* Linn**

***Foeniculum vulgare* Mill**

Figure 1: Showing Medicinal Plants Used By Gujjar Tribes

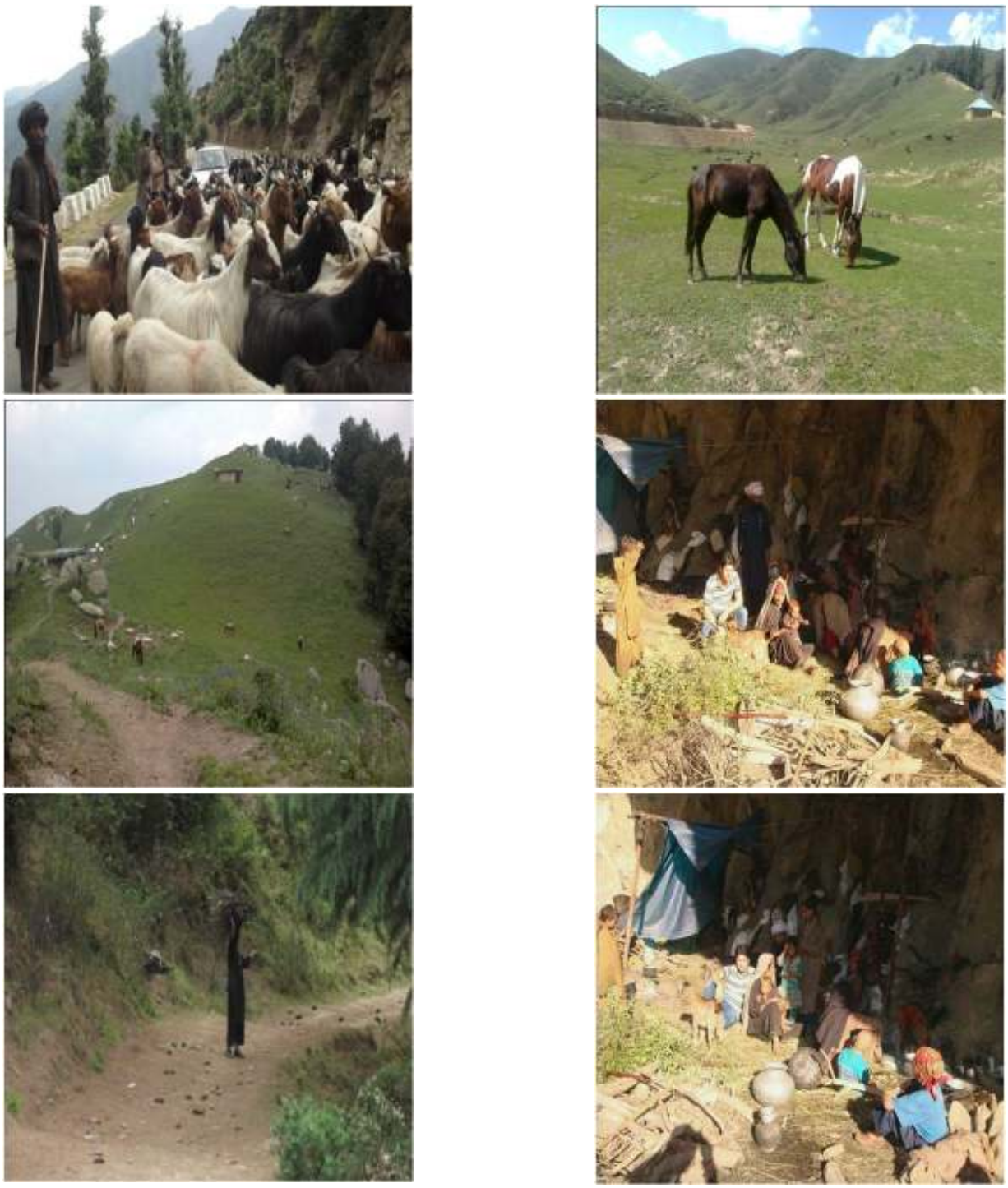

Figure 2: Showing Study Site of Gujjar Tribes Using Forest Resources for Their Livelihood.

CONCLUSION

There is no systematic training for transmitting knowledge of these curative plant remedies from one generation to the next. The people of modern generation are picking up knowledge from their ancestors based on

observations only. Before this knowledge, which is based on experience of generations and handed down to us through the mediation of tribal and rural people in the form of oral folk-claims is lost in oblivion. To keep the benefit of these plants alive for future generation there is an urgent need of conserving these medicinal plants as well as the traditional knowledge of the plants. It is possible only due to mutual cooperation of people in local communities and various scientists and specialists present there.

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