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Ethno-veterinary medicinal plants of Chail valley

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Abstract

Ethno veterinary study on plants of Chail valley was conducted during 2013-2014.55 plants species belonging to 46 families were studied i.e. 4 species in Asteraceae, 3 in Euphorbiaceous and 3 in Lamiaceae. Rest of the families contain two or single species. Among the recorded plants fifty one species are Dicots and four are monocots. In all these plants species about 40 are herbs, 9 are shrubs and 6 are Trees. Some species are commercially collected in the Chail valley like *Dioscorea deltoidea*, *Skimmia laureola, Saussurea atkinsonii, Paeonia emodi, Podophyllum emodi, Rheum emodi* and *Thymus linearis*. All these medicinal plants are extensively used. Most people of the area depend on live stocks. Because of poverty, exploitation of wild life, erosion deforestation, and unauthorized collection, most of the plant species are threatened slowly and gradually. Valuable medicinal plants and locally knowledge is disappearing. In Chail valley most of the women and children are involved in the collection of different medicinal plants for selling and local uses.

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Introduction

Chail valley lies between 72°-4/" East longitude and 34°-9/in "North latitude. The valley is situated in the East of Madyan Swat at a distance of 8 km. Elevation of the valley varies from 6000 to 7000 feet. Chail valley shares its hilly borders with Mankial and Gornay in North. Dubeer and Lelawnai in East, Main dam and Pia in South. Total area covered by the Valley is about 24149 acres, out of which 20830 acre is cultivable and 3319 is uncultivable. Forest area of the valley is divided into 48 compartments. The valley has been divided into four small villages i.e. Bishgram, Dabargay, Shanko and Chail Villages. Total population of the valley is 13761 (District census report 1998).

Plants are the primary producers of the ecosystem and the basic unit of life. Plants not only provide food, fibers and shelters, but also provide a wide source of medicine throughout the world. According to WHO (1978) report 70% of the world population use medicinal plants for curing diseases through their traditional practitioners. From the time, immemorial humankind use plants for medicinal purposes and this indigenous knowledge of plant use is transferred from generation to generation through their ancestors. Humankind, not only use plants medicinally for itself, but also for their livestock. It has been estimated that over 35,000 plants species are used for medicinal purposes throughout the world. (Ramakrishnan *et al.* 1998).

Mishra *et al* (1994) studied the plants utilized for ethno - veterinary purposes as house hold medicines and those used, to increase the strength, vigor and milking capacity of the animals. From the time immemorial human beings use plants medicinally to cure diseases and relive pain and heals of body. Early Arians, Babylonians, Ancient Hebrews, Greeks and Chinese extensively used medicinal plants. Latter civilizations also acknowledge the potential of herbs as far back as 500-400 BC (Hill 1951). According to WHO (1978) folk tradition of medicinal plants is very valuable resource in their own right. A survey conducted by WHO, That traditional healers treat 85% patients in Mayanmar, 80% in India and 92% in England, 60% in Indonesia and 75% in Nepal.

The present work is carried out to document the indigenous knowledge of medicinal plants of veterinary use, along with local names, botanical names, respective family, parts used and method of recipe preparation.

Materials and methods

Geo-ethnographical overview of the study area

The study of ethno veterinary medicinal plants was conducted in April 2013 to march 2014 in the Chail valley located in district swat of Khyber Pakhtunkhwa province Pakistan, near the border of Afghanistan and lies between 72-36 longitude and 35-09N latitude. Topographically the study area is mountainous and lush green with the elevation starting from 1830 m above from sea level up to 4270m. The total area of Chail valley are about 24,148 acres and are including mountains, glaciers, meadows, forests and plains. Geoclimatically the study area falls in within moist temperate zone where climate is controlled by various factors. The winter season is much sever and snowfall occur during the December and February and minimum recorded temperature is -2- 04c. Before starting the research work, information were collected from the local people of the area of various regions including Shanko, Bishigram, Dabargay and Chail.

Field interviews and data analysis

During plants collection which are uses as ethno veterinary, different information were collected from local people about ethnovetrinory plants and animal diseases which are common in the said area. For interview those people were selected who have knowledge, ideas and information about ethnovetrinory plants and animals diseases. Mostly aged males and females were interviewed and then the interviewed people were divided in to two ages group i.e 40-55 age and 56-65 age respectively. The questionnaire was divided into two parts. The first part of the questionnaire include information about name, locality, age, education and occupation of the informer, while the second part was specified for the plant's botanical name, local name, family name, part used, purposes of use and local methods of recipes preparation.

Ethnovetrinory plants were collected in different tours. Firstly the collected plants were identified from published literature and expert taxonomists. Then the identified plants were dried and pressed by mostly shade drying method. (Nasir and Ali, 1970-1995). The dried, identified and pressed plants were tape on herbarium sheet and submitted to the herbarium of Govt. P.G. Jahanzeb College Saidu Sharif Swat for further study.

Results

Local people of Chail valley utilize about 55 species belonging to 46 families for curing various diseases. Most of the reported plants were herbs, shrubs and few were trees.

The studied plants were classified into different groups on the bases of their ethno veterinary uses. Some members are used only for one type of disease while others are used for various illnesses. The detail uses of plants along with their respective families are given below in the Table 1. Therapeutic classes of various ethno veterinary plant species along with percentages are shown in Table 2 and market survey and its trade value has been shown in Table 3.

Table 1. Detail uses of plants along with their respective families.

SL	Specie Name	Family	Habit	Part used	Local name	Aliment treated
1	*Andrachnecordifolia* (Done) Muell.	Euphorbiaceae	Herb	Leaves and Fruits	GulPinsa	Dried leaves are mixed with corn flour and feed to cattle's as vermifuge.
2	*Aesculusindica* (Wall) HK.F.	Hippocastanaceae	Tree	Fruits	Jawaz	Fruit is given to horses for colic.Also used in chest diseases of horses, donkeys and mules.
3	A*jugabracteosa* Wall-ex Benth.	Lamiaceae	Herb	whole plant	Boti	Juice of leaves and shoots is given to animals in Hemorrhagic diseases andsepticemia (Gotta).
4	*Arisaema jacquemontii* Schott.	Araceae	Herb	Rhizome	Marjarai	Small amount of rhizome is given to buffaloes and cows in bolus form for acute respiratory tract infection and cough.
5	*Artimisia brevifolia* Wall.	Asteraceae	Herb	Leaves and Floral parts	Tarkha	Dried young shoot and leaves are enclosed in the bolusand feed to promote digestion.Also used to kill worms.
6	*Asparagus adscendens*Roxb.	Asparagaceae	Shrub	Root	Tindoray	Young stems are used as fodder for, promoting lactation in animals like buffaloes, goats and sheep.
7	*Allium sativum* L.	Alliaceae	Herb	Bulb	Ooga	Ground bulbs are mixed with flour, (locally called pirra) and given to buffaloes and cows to increase digestion and for anoxia treatment. In poultry it is mixed with Red chilies and used fornewcastellsdisease(toghakey).
8	*Bunium persicum* Boiss Fedtsch.	Appiaceae	Herb	Fruit	Zankai	Fruit of the plant is used as febrifuge in Cattles.
9	*Berberius lyceum* Royle.	Berberidaceae	Shrub	Root Bark	Koray	Bark of the plant is given orally to livestock for improving feeding and general health maintenance.
10	*Bistortaamplexicaulis* D. Don.	Polygonaceae	Herb	Root	Tarwapana / Anjabar	Rootsaregiven in bolus form for curing paralysis in cattle.
11	*Bergenia ciliata* Sternb.	Saxifragaceae	Herb	Root	Badmia	Locally dried rootsare crushed and mixed with flour, boiled in water and given to cows, goats and sheep for diarrhea.
12	*Brassica campestris* L.	Brassicaceae	Herb	Oil	Sharsham	The oil is used as carminative, stomachache and laxative.
13	*Chenopodium murale* L.	Chenopodiaceae	Herb	Shoot and Root	Benkai	Root in powdered form is mixed with flour and used as anthelmintic for live stocks.
14	*Cichorium intybus* L.	Asteraceae	Herb	Root	Han	Fresh or dried young roots are given to cows, goatsand buffaloes against fever.
15	*Cedrus deodara* (Roxb. Ex Lambert) G. Don.	Pinaceae	Tree upto 30m tall	Oil	Diyar	The oil of the plant is mixed with yogurt and used for flatulence and other stomach disorders.
16	*Daphne mucranata* Schreb.	Thymelaceae	Shrub	Fruits, leaves	Laighonai	Leaves in the powdered form are given to live stocks as anthelmintic.
17	*Delphinium denodatum* Wall ex Hook. F. Thoms.	Ranunculaceae	Herb	Rhizome	Jadwar	Dried rhizome is mixed with flour and used as cooling agent.
18	*Dodoneaviscosa* (L) Jacq.	Sapindaceae	Shrub	Seed and leaves	Ghuraskay	Dried or fresh plant is given to cattle as anthelmintic.
19	*Diospyros lotus* L.	Ebenaceae	Tree	Dried ripe fruit	ToorAmlook	Locally use in diarrhea.
20	*Fumariaindica* (Pugsley).	Fumeriaceae	Herb	Whole Plant	Papra	Decoction is given to livestock for curingfever.
21	*Geranium wallichianum* D.Done.	Geraniaceae	Herb	Rhizome	Srazela	The powdered rhizome is mixed with milk and give to buffaloes to promote lactation.
22	*Gentiana kurro* Royle.	Gentianaceae	Smallherb	Stem and Roots	Gentian	Used for fattening of cattle.
23	*Hypericum perforatum* L.	Hypericaeae	Herb	Root	Shin Chai	Dried root are given orally in bolus to enhancing wound healing in livestock.
24	*Hyoscymus niger* L.	Solanaceae	Herb	Leaves	Bargak	The decoction of leaves is kept for a night and then used for wound healing in horses and donkeys.
25	*Justicia adhathoda* L.	Acanthaceae	Shrub	Leaves	Baikar	Plant are naturally hot and given to cattle to increase the body temperature after giving birth to calf.
26	*Lepidium sativum* L.	Brassicaceae	Herb	Fruit	Halam	The Seeds are given orally to livestock to treat flatulence. It is also used as purgative.
27	*Lathyrus aphaca* L.	Fabaceae	Herb	Roots	Korkamanai	The ground dried root is given orally for any infection of the body. It is administrated as appetizer inbolusform.It also causes Latinism in cattle.
28	*Melia azedarach* L.	Meliaceae	Medium size cultivated tree	Fruit	TooraBakanira	The powdered fruits are mixed with flour, and used for sore throat in cattle and for the softness of the udder. The extraction of leaves is used against laces (Spagay).

SL	Specie Name	Family	Habit	Part used	Local name	Aliment treated
29	*Mallotus philippensis* L.	Euphorbiaceae	Shrub	Fruit	Kambila	The powdered dried fruit is mixed with flour or in oil cakes for diarrhea. It also used as vermifuge.
30	*Mentha longifolia* L.	Lamiaceae	Herb	Leaves	Enaley	The powdered dried leaves are used for cattle to decrease internal inflammation. In bolos form it is used to relief flatulence in cattle.
31	*Origanum vulgare* L.	Labiateae	Herb	Leaves	Shamakey	Dried leaves are used to increase lactation in livestock.
32	*Primula denticulata* Smith.	Primlaceae	Perennial Herb	Rhizomesand Leaves	Mameera	Use in ophthalmic diseases of livestock. The extraction of leaves is directly used for eyes.
33	*Paeonia emodi* Wall-ex H.k.f.	Paeoniaceae	Herb	Rhizome	Mamekh	Rhizome is used to increase milk. The dry rhizome of the plant is crushed and mixed with wheat flour and used as general body tonic for cows, goats and sheep.
34	*Polygonatum verticelatum* L.	Liliaceae	Herb	Rhizome	Noor-e-alam	The decoction of rhizome is used for expulsion of placenta in buffaloes. Crushed rhizome is given to cattle to increase milk production.
35	*Punica grantum* L.	Punicaceae	Shrub	Fruit	Nangoray	Dried per carp of fruit is given in bolus for the removal of intestinal helminthes.
36	*Pyrus pashia* L.	Rosaceae	Herb	Rhizome	Mamekh	Fruit in fresh form is given for inflame mammary glands in buffaloes and cattle.
37	*Ranunculus aquatilis* L.	Ranunculaceae	An aquatic Herb	Whole plants	Jaghagha	A decoction of the plant is used for asthma and periodic fever and as a purgative for goats.
38	*Quercus dilatata* Lindle-ex-Royle.	Fagaceae	Tree	Fruit	Toorbanj	Dried fruit of plant is given orally in bolus form for urinary problem in cattle.
39	*Ranunculus muricatus* L.	Ranunculaceae	Herb	Whole plant	Ziargulay	A decoction of plant is used for goats as purgative.
40	*Rumex dentatus* L.	Polygonaceae	Herb	Leaves	Shalkhay	Fresh ground leaves are mixed with wheat and used for the treatment of constipation in cattle.
41	*Rheum emodi* Wall-ex. Meissner.	Polygonaceae	Herb	Root	Chutial	The root of plant is crushed, mixed with wheat flour and then boiled, and given to cows, goats, sheep and donkeys as purgative agent.
42	*Rubus fruticosus* H.k.f.	Rosaceae	A climbing Prostrate Herb	Fruit, Leaved and Shoots	Karwara	They are used as diuretic and carminative for goats.
43	*Salvia moorcroftiana* Wall-ex-Benth.	Lamiaceae	Herb	Leaves	khardug	Fresh leave are given orally for treatment of fever and also for the expulsion of placenta after labor.
44	*Skimmia laureola* Sieb, (D.C) Sieb. & Zucc-ex Wall.	Rutaceae	Herb	Leaves	NazarPana	Dried leaves are used to remove liver fluke and intestinal worms and stomach pain.
45	*Stellaria media* L. Cyr.	Caryophyllaceae	Herb	Whole Plant	Oolalai	The plant mixed with fodder crops and consider as appetizer agent.
46	*Swertia alata* Royle. Ex D.Don.	Gentianaceae	Herb	Whole Plant	ChiratBotay	The powdered plant is mixed with flour and desi ghee and given to horses and donkeys as a body tonic.
47	*Saussurea costus* (Fark) Lipsch.	Asteraceae	Herb	Root and Leaves	Sharshamai	Roots are mixed in flour and used for milk production and given as general body tonic.
48	*Trachyspermum ammi* (L.) Sprague.	Apiaceae	Herb	Fruit	Sperkai	The dried seeds are given orally in bolus form for the treatment of colic and flatulence.
49	*Thymus linearis* L.	Lamiaceae	Herb	Whole Plant	Kaneesh	Locally the dried powdered plant is mixed with wheat and given to cow, goat and sheep to increase milk production.
50	*Urtica dioica* L.	Urticaceae	Herb	Leaves	Jal Bang	Mix with fodder to increase milk production in cows and buffaloes.
51	*Verbascum thapsus* L.	Schroplariaceae	An Annual Herb	Leaves, Flower and Seeds.	Kharghwag	Used against diarrhea and dysentery in cattle. The seeds are narcotics and used as fish poison.
52	*Withania somnifera* (Linn.) Dunel.	Solanaceae	Shrub	Seeds	Kotilal	The powdered dried fruit are used as healing agent of wound of mammary glands in cattle.
53	*Euphorbia helioscopia* L.	Euphorbiaceae	Annual Weed	Leaves	Prevatkai	Leaves extraction are applied on the infected area for general body rashes in livestock. The extraction of leaves is directly used on skin as anti-laces.
54	*Zanthoxylum armatum* Dc.	Rutaceae	A medium Size Spiny Shrub	Bark, Stem, Fruits andSeeds	Dambara	Mixed with flour and given to cows, buffaloes and goats as anathematic, carminative and used for increasing milk.
55	*Periploca aphylla* L.	Asclepiadaceae	Shrub	Stem	Bararra	Locally the latex is used as antibiotic for curing dermatitis in live stocks.

Table 2. Therapeutic classes of plant species.

Therapeutic Class	No	Percentage %
Carminative	2	3.6 %
Anthelmintic	6	10.9 %
Tonic	3	5.4 %
Flatulence	2	3.6 %
Purgative	4	7.2 %
Laxative	1	1.8 %
Appetizer	2	3.6 %
Diuretic	1	1.8 %

Table 3. Market survey of medicinal plants in Chail valley.

SL	Botanical name	Local name (Market name)	Market price	Part use	Buyer
1	*Skimmia laureola* Sieb. (D.C) sieb. &Zucc-e Wall.	Nameer or NazarPana	Rs. 10-/kg	Leaves of bark	Shopkeeper
2	*Dioscorea deltoidea* Wall.	Kanis	Rs. 5-7/kg	Rhizome	Shopkeeper & local dealers
3	*Podophyllum emodi*	Kakora or Bank Kukurri	Rs. 30-40/kg	Driedrhizome & Roots	Shopkeeper
4	*Viola serpense*	Banafsha	Rs. 230-50/kg	Leaves & flowers	Hakims.
5	*Paeonia emodi*	Mamekh& Ward	Rs. 6-8/kg	Seeds & Roots	Hakims, local dealers
6	*Bergenia ciliata*	Zakhm-e-hg-yat or maken path	Rs. 6-8/kg	Roots	Hakim & shopkeeper
7	*Saussurea lostus*atkin Sonic	Sharshammi	Rs.24-30	Root	Shopkeeper

Discussion

Chailvalleylies between 72°-4/" East longitude and 34°-9/in "North latitude. Altitude of the valley varies from 6000 to7000 feet above sea level. Chail valley covers a total of about 24149 acres land area, out of which 20830 acres is cultivable. The soil of the valley is fertile and therefore, many kinds of crops and fruits are cultivated in the valley.

In the present work, about 55 medicinally important plants belonging to 46 families were studied. These plants were regarded highly important for ethnoveternarypur poses and recommended for various diseases of cattles. Most of these plants were herbs, shrubs and few were trees. The knowledge of local people about the importance of plants and their method of uses for various ailments of animals were recorded in the form of questionnaire. The availability of these plants, their excessive use for personal as well as for commercial bases, their eradication and miss uses were also recorded.

Common trees growing in chail valley includes *Diospyrus lotus* (Tor Amlok), *Juglans rejia* (Ghuz), *Morus alba* (Toot), *Pyrus communis* (Nashpati), *Prunus armeniaca* (Khubanai), *Cedrus deodara* (Deodar), *Picea smithiana* (Mangazai), *Pinus wallichiana* (Pevoch) and *Quercus dilatata* (Banj). According to questionnaire data, leaf and root decoction of the above mentioned trees are very useful in urinary, gastric, chest and digestive disorders of cattle's. Shrubby and herbaceous floras which are extensively used for ethno veterinary purposes in the valley includes *Chenopodium murale, Daphne mucranata, Dodonea viscosa, Zanthoxylum armatum, Lepidium sativuml, Ranunculus aquatilis, Ranunculus muricatus, Brassica campestris, Lathyrus aphaca*, *Stellaria media*, *Arisa eama jacquemontii*, *Ephorbia helioscopia*, *Allium sativum*, *Berberis lycium*, *Mentha longifolia* and *Ajuga bracteosa.*

Data shows that most plants of the valley are used for Anthelmintic (10.9%) purposes of cattles. Beside this, various plants of the area are used as Purgative (7.2%) followed by, Tonic (5.4%), Carminative (3.6%), Flatulence (3.6%), Appetizer (3.6%), Diuretic (1.8%), and Laxative (1.8%) purposes. In the herbaceous flora,

Most of the people of the valley are illiterate and their main profession is farming. Due to high illiteracy rate, the local people lack awareness about conservation of thee thnoveternary flora. Keeping in mind this problem, there is a need of different firms like WWF, IUCN and EPS to work on the limited resources of the valley and to ensure the local community on the importance of the flora. Currently no proper management system for conservation exists in the valley except up to some level. So there is a need to attract national and international firms which are working for the improvement and conservation of natural resources. It is further suggested that the local community should bewared about the importance, pre and post-harvest methods of the flora. Beside this, they should also be taught about the cultivation of these highly valuable ethno veterinary plants on commercial basis, and subsequently their trade and marketing. This will results in the reduction of pressure on important flora.

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