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ETHNO-VETERINARY STUDY OF MARGHAZAR VALLEY

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ABSTRACT

An Ethno-veterinary study was conducted in the Marghazar Valley, district Swat Pakistan during summer 2006. A total of 49 Ethno veterinary important plant species were found to belong to 49 genera and 35 families. Among these families the largest family was Lamiaceae, having 5 species, the second largest family was Asteraceae having 4 species.

Key words: Ethno-veterinary, Marghazar Valley, Pakistan

INTRODUCTION

Marghazar valley is situated in the lower parts of Swat District at a distance of 15 Km from Mingora. It is comprised of five main villages named as Spal Bandai, Kukrai/Chithor, Marghazar, Sher Athraf and Islampur. The valley is surrounded by green mountains. The highest mountain of Marghazar is Elum (1780 m), located between Swat & Buner. The mountain is covered with thick forests. According to revenue and census department, the total population is 22613 people the total area of the valley is 14647.68 hectares; out of which 4169.7 hectares is cultivated land and the rest is arid**.** In cultivated area, the upper limits which is Barani (rain-fid) area, where maize is the main crop while in the lower valley wheat and onion are cropped in double cropping system. Rice is grown in some areas where possible. Soil fertility is degraded due to the little input of farmyard and organic manure and the irrational use of fertilizer. Agriculture is mainly extensive and integrated, traditionally, with livestock and horticulture. Apple, apricot, pears and plum are the main trees, which are traditionally grown in the orchards. Cow, buffaloes, sheep and goat are reared, only for domestic need.

Climatically the area falls within the subtropical and moist temperate zone, with heavy rain and snowfall, severe weather and pleasant summer. An average of meteorological data (2004 -2005) collected by Department of Agricultural Extension Swat is given in (Table 1), where annual rainfall was recorded as 1004mm, Relative Humidity averaged around 60% but winter months, 42 to 48%.

Tablr 1. Meteorological data collected by Department of Agricultural Extension Swat, (2005).

Months	Temperature				Rain fall (mm)	R.Humidity %
	Max (^{O}C) 1	Min (^{O}C) 2	Max (^{O}C)3	Min (^{O}C) 4		
January	18	0	15	4	112	71
February	15	2	12	3	160	80
March	22	6	17	12	238	73
April	32	11	25	16	32	70
May	33	14	29	21	135	67
June	41	14	32	22	40	52
July	43	21	38	26	144	52
August	38	22	35	25	51	65
September	37	22	34	26	44	48
October	32	10	29	13	24	48
November	24	5	21	8	12	42
December	18	0	17	5	12	48
Total	353	127	304	181	1004	716

1: Highest (maximum temp., 2: Lowest minimum temp., 3: Mean maximum temp., 4: Mean minimum temp.,

LIVESTOCK

About 90% of the households have livestock that include cows, buffaloes, goats and sheep. Cow and sheep dominates livestock in the higher elevations areas, while number of buffaloes is higher in villages on the valley floor. However, few households located in the higher elevations have buffaloes. Data on livestock collected from key informants in the main villages and hamlets is presented in the following Table 2.

Animal rearing is an integral part of agriculture, as the bulls plough the fields and buffaloes, cows and goats give milk, curd, buttermilk, ghee and meat. The sheep provide wool for blankets. Moreover, the dung of these animals is used as manure and fuels. The skins are used for shoes making purpose. Ethno veterinary studies offer scientific methods of understanding indigenous veterinary practices. The use of local plants to cure or prevent illness in smaller animals has led investigators to test these methods for the possibilities of extending their use to other areas and regions. Bazalar and Corkle (1989) described analysis of the different studies of animal's health in rural communities of the Upper Anedds region of Peru and the evaluation and efficiency of local plants in control of parasites**.** Kakrii and Williams (1990) reported that at least 6500 species of medicinal plants are used in Asia as home remedies. They also estimated that in India 450 species, in Bengal 25 species, in Nepal 100 species, in Bhutan 300 species and in Pakistan 400 species are used as herbal remedies. Batrurai (1992) conducted a survey of plants used in central Nepal for treating animals includes a list of plants and their uses. Mishra (1994) studied plants utilized for ethnoveterinary purposes as house hold medicines and those used to increase the strength, vigour and milking capacity of the animals are discussed. Sikawar (1994) enlisted the plant species belonging to 33 genera and 27 families, which have been used by inhabitants of tribal rural people, for the treatments of various aliments of domestic animals were presented. Some important species are *Achyranthes aspera* (cough), *Balanites aegyptieca* (constipation), *Bombax ceiba* (bone dislocation), *Cleome gynandra* (wound), *Hyptis suaveolens* (conjunctivitis), *Plumbago zeylamica* (stomach trouble) and *Salvadora oleoides* (throat sweeling) in Morena District India.. Davis *et al*, (1995) gathered some preliminary information on traditional practices in Afghanistan. They reported plants used for curing of various diseases of sheep, goats and cattle. Sudarsanam *et al*, (1995) conducted an ethno botanical survey in Rayala Andra pardash (India) during 1985-88. Local trible herbal lists and traditional veterinary healers (Pasuvydyullu) were interviewed and 106 plant species used to treat different diseases of domestic animals including sheep, goats, pig, and cattles. Rajan and Suthavoma (1997) studied the rural area of Southern India, where pastoral people keep alive the tradition of veterinary practices based on the curative power of plants. The paper presents the most common remedies and analysis the data concluding with recommendation for a through pharmacological validation. Dano and Ho-Bogh (1999) studied the use of herbal medicines against helminthes in livestock and listed 67 plant species reported to be traditionally used as anthalmentics. Mccorkle (1999) describes the process and some of the successful recipes of the on-farm trials in ethno veterinary. Lans *et al* (2000) studied that ethno veterinary medicines used to treat dogs in Trinidad and Tobago in 1995. Masika *et al* (2000) studied the use of herbal remedies by African farmers in the treatment of live stock diseases during 1996 using a range of methods, in central Eastern Cape Province. The objective of the present study was to present a check list of plants that are used as the remedy of different diseases of animals in Marghazar Valley.

Table 2. Livestock population in different villages.

S.No	Village	Livestock Population				
		Cattle	**Buffaloes**	**Goat/Sheep**	**Others**	***Total***
1	Spal Bandai	225	235	157	30	*647*
2	Kukrai/Chithor	370	214	500	75	*1159*
3	Marghuzar	580	350	1200	250	*2380*
4	Sher Athraf	130	45	700	70	*945*
5	Islampur	530	270	980	420	*2200*
	TOTAL	***1835***	***1114***	***3537***	***845***	***7331***

MATERIALS AND METHODS

The study of indigenous knowledge of medicinal plants, about veterinary use, was conducted during summer from August to November, 2006 in various parts of Marghazar valley. Before starting the research work, information regarding the common veterinary diseases which occur in Marghazar valley, were collected from the veterinary hospital of Saidu Sharif Swat. The valley consists of five main villages, for data collection 50 houses were visited, 10 from each village, both male and female, mostly above 40 year of age persons, were interviewed

through questionnaire. Plants were collected from different sites, dried, preserved and identified with the help of flora of Pakistan (Nasir and Ali, 1970-1995; and Ali and Qaiser, 1993-2007). The study work conducted during the flowering season of 2005, which is from April to September to collect the field data about various plants. Voucher specimens were collected, their local names and usage was documented through Questionnaire. Voucher specimens were deposited in Herbarium Department of Botany Govt. Post Graduate Jahanzeb College Swat.

RESULTS AND DISCUSSION

The local people of Marghazar valley utilize about 49 species of medicinal plants for curing various diseases of cattles. These 49 species belong to 35 families. Among these families the largest family is Lamiaceae, having 5 species, the second largest family is Asteraceae having 4 species. These plants are used either individually or in combination with other plants or even in mixture with gur, ghee, flour etc for the treatment of live stock ailment such as flatulence, constipation, fever, anthalmentic, lactation, vermicides, body tonic, diarrhea and dysentery. *Chenopodium murale*, *Daphne oleoides*, *Dodonea viscosa*, and *Zanthoxylum armatum* are used as anthalmentic. *Cedrus deodara*, *Lepidium sativum*, *Mentha longifolia* and *Thymus linearia* are used for the treatment of flatulence. *Geranium wallichianum*, *Origtanum vulgare*, *Polygonatum verticelatum*, *Thymus linearia* and *Zanthoxylum armatum* are used to increase milk. The detailed uses of plants are given in the Table 3.

Table 3. Ethno-vaterinary Plants used by the local people of Marghazar people.

Family	Botancial Name and voucher specimen number	Local Name	Part used	Mode of preparation	Aliments treated
Acanthaceae	*Justicia adhatoda* Nees.	Baikanr	Leaves		increase Temperature
Aliaceae	*Allium sativum* L.	Ooga	Bulb		Anoxia, castells diseased (toghakay)
Ground bulbs are mixed with flour (pirra) and give to buffaloes and cows to increase digestion and for anoxia. In poultry it is mixed with red chillies and used for new castells disease (toghakay).					
Apiaceae	*Bunium persicum* (Boiss.) Fedtsch.	Zankai	Fruit		febrifuge in cattle
	Foeniculum vulgare Mill.	Kagavenalay	Fruit		pneumonia & Haemorhagic septicaemia
Recipe: *Foeniculum* fruit are mixed with salt and flour (Pirra) and give to buffaloes and cows for above diseases.					
Araceae	*Acorus calamus* L.	Skhawaja	Rhizome	powder	cold, colic and tako
	Arisaema jacquemontii Schott.	Marjarai	Rhizome		cough, cold and respiratory diseases
Asparagaceae	*Asparagus adscndens* Roxb.	Tindoray	Leaves		promoting lactation
Asteraceae	*Artemisia brevifolia* Wall.	Tarkha	Leaves & flowering tops		improve digestion vermicides

	Cichorium intybus L.	Han	Leaves & roots	fever
	Laumea procumbens Roxb.	Shauda pai	Leaves powder	enhance lactation.

Recipe: Powdered made from the leaves is mixed with gur and used to enhance lactation.

	Xanthium strumarium L.	Ghishkay	Whole plant	pain killer
Berberidaceae	*Berberies lycium* Royle	Kwaray	Root Bark	improving Feeding
Brassicaceae	*Brassica campestris* (L.) Clapham	Sharsham	Seeds (Oil)	stomachic and Laxative
	Lepidium sativum L.	Halam	seeds	purgative & Treat flatulence
Caryophylaceae	*Stellaria media* (L.) Vill.	Olalai	Whole plant	appepitzer agent.
Chenopodiaceae	*Chenopodium murale* L.	Bennakai	Shoot & Root powder	anthalmentic
Ebenaceae	*Diospyros lotus* L.	Toor amlook	Fruit	diarrhea
Euphorbiaceae	*Mallotus philippensis* (Lam) Muell Ary	Kambela	Fruit powder	vermifuge & diarrhea.

Recipe: The powdered dried fruit is mixed with flour or also given with oil cakes for such problems.

Fagaceae	*Quercus dilatata* Lindl. ex Royle	Toor Birang	Fruit power	urinary Problems
Fumariaceae	*Fumaria indica* (Hausskn.) Pugsl	Papra	Whole plant Decoction	Refrisent

Local uses: Decoction of the plant is made and gives to all type of livestock for curing fever and refrisent.

Geraniaceae	*Geranium wallicianum* D.Don ex Sweet	Sra zeal	Rhizome powder	promote lactation

Recipe: The powdered rhizome is mixed with milk and gives to buffaloes.

Hippocastanaceae	*Aesculus indica* (Wall.ex Comb) Hook.f.	Jawaz	Fruit powder	colic and chest
Hypericaceae	*Hypericum perforatum* L.	Shin chai	Whole plant powder	given orally For enhancing wound healing
Lamiaceae	*Ajuga bracteosa* Wall.ex Benth.	Boti	Whole plant juice	Haemorrha-gic diseases & septicaemia (Gotta)

	Mentha longifolia L.	Velanay	Leaves powder	decrease Inflammat-Ion & Relief flatulence
	Origanum vulgare L.	Shamakay	Leaves powder	increase lactation
	Salvia moorcroftiana Wall.ex Benth.	Kharghwag	Leaves	remove Placenta after parturiation.
	Thymus linearia Benth.	Spirkai	Fruit	roasted colic & flatulence

Recipe: The fruit is first and then mixed with flour (pirra) and given to buffaloes.

Liliaceae	*Polygonatum verticelatum* (L.) Allioni.	Noorealam	Rhizome decoction	promote lactation
Meliaceae	*Melia azedarach* L. Shandai	Tora bekanra Extraction	Fruit powder &	sore throat, soft or breast & is used for lices
Paeoniaceae	*Paeonia emodi* Wall.ex Royle.	Mamekh	Rhizome powder	promote lactation, tonic & pain killer

Recipe: The dried rhizome of the plant is crushed and mixed with wheat flour-used as general body tonic for cow, goats & sheep.

Pinaceae	*Cedrus deodara*	Ranzra	Wood oil	flatulence and Stomachic
Poaceae	*Bromus japonicus* Thurd. ex Murr.	Jokay	Shoot Power	Fodder, treat constipation
Polygonaceae	*Bistorta amplexicaulis*	Tarwa panra	Rhizome	paralysis

Recipe: Rhizome is internally applied in bolus form for cure paralysis in cattles.

	Rumex dentatus L.	Shalkhay	Leaves	Fresh treatment of constipation
Primulaceae	*Primula denticulata* Smith.	Mamera	leaves Extraction	eyes disease
Punicaceae	*Punica protopunica* L.	Anangory	pericarp powder	remove intestinal

				helminthes
Ranunculaceae	*Ranunculus muricatus* L.	Jawawa	Whole plant decoction	purgative
Rhamnaceae	*Zizyphus sativa* Gaertn.	Markhanray	Leaves	promote lactation
Rosaceae	*Rubus fruticosus* HK.f.	Karwara	Fruit & leaves	Diuretic & Carminative
	Pyrus pashia Buch-ham ex D.Don	Batangai Shengatai	Fruit fresh	inflammation of mammary glands
Rutaceae	*Zanthoxylum armatum* DC.	Dambara	Fruit, seeds & bark	anthalmentic & Carminative, promote lactation
Sapindaceae	*Dodonea viscosa* (L.) Jacq.	Ghuraskay	Leaves Dried leaves	anthalmentic heal wounds, burn & swelling
Recipe: Dried leaves are grinded, mixed with mustard oil and used for wound healing.				
Saxifragaceae	*Berginia ciliata* (Haw.) Sternb.	Goganda	Rhizome Power	diarrhea & Kamar panra Wound healing
Recipe: Locally the dried rhizome is crushed and mixed with flour, boiled in water and give to cow, goat and sheep for diarrhea.				
Scrophulariaceae	*Verbascum thapsus* L.	Khardag	Whole plant	diarrhea & dysentery
Solanaceae	*Datura stramonium* L.	Datura	leaves & seeds powder	increase body temperature (Charmekh)
	Hyoscyamus niger L.	Bargak	Leaves decoction	use internally for wound Healing
	Withania somnifera (L.) Dunale.	Kotilal	Seeds powder	healing agent
Thymeleaceae	*Daphne mucronata* Royle	Laighonai	Whole plant powder	anthalmentic

Conclusion

The people of the Marghazar valley are mostly farmers and the education ratio is very low. The veterinary hospitals are far away from the valley, therefore medicinal plants of this area play important role in curing diseases.

The traditional knowledge is mostly limited to old people. Young generation have no interest in knowing about the medicinal uses of plants.

The old people who still use plants as medicine are generally uneducated and they have no proper training, regarding harvesting, post harvest care and storage of medicinal plants. There is no trend of medicinal plants cultivation. Many medicinal plants have become extinct due to overgrazing, deforestation, improper management and biotic factors and over exploitation.

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