

Brief Anthropology and Antiparasitic Remedies in Kurdish Ethno(veterinary)medicine: A Neglected Treasure Trove

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ABSTRACT

The western Iran is unique and diverse in geographical locations and ethnic groups, mainly Kurdish group. The aim of this study was to gather and to record antiparasitic remedies that still used in Kurdish tribes in western Iran. The research area included the most populated parts of the Kermanshah and Kurdistan provinces, mainly Kermanshah, Sahneh, Songhor, Dalahu, Javanrood, Sanadaj, and Kamyaran. The studies were done by Kurdish language scholars of veterinary medicine. A purposive sample of 15 participants was created from interviewing of herbalists, farm women, the old, farmers, shepherds, animal breeders, horse trainers and chiropractic men. Among them only market herbalist refused to participate in interviewing sessions more than 1 to 2 times. Twenty plants with documented antiparasitic activity are reported here. *Andropogon nardus*, *Artemisia multellina* vill, *Achilla mountainica*, *Astragalus gossypinus* Fisch; *Artemisia absinthium*, *Cucurbita verrucosa*, *Cinchona officinalis*, *Gossypium herbaceum*, *Marrubium vulgar*, *Polygonum aviculaveofficinal*, *Hippophae rhamnoides*, Red berries of Willow thorn (Tarou in Kurdish), *Pisum sativum*, *Allium ampeloprasum*, *Satureja hortensis*, *Tragopogon porrifolius*, *Salix* spp., *Allium* spp., *Allium Moly*, *Rubia tinctorium* are used as vermifugal remedies in Kurdistan. A functional soup made of lentil, saffron and blackseed is used by Kurdish people as an antiparasitic meal. Overall, due to the lack of interest among the younger generation as well as their tendency to migrate to cities for lucrative jobs, there is possibility of losing the wealth of knowledge of Kurdish ethnomedicine in the near future. It thus becomes necessary to acquire and preserve this traditional system of medicine.

KEY WORDS: Kurdish language, Kurdish Ethnomedicine, Antiparasitic plant.

INTRODUCTION

The Kurds (Kurdish) are an Iranian-speaking ethnolinguistic group mostly inhabiting a region that includes adjacent parts of Iran, Iraq, Syria, and Turkey and which is known as virtual Kurdistan. They speak Kurdish, an Indo-European language of the Iranian branch. The origins of the group and its relationships with historical entities and names are multifaceted and dubious. Most Kurds are bilingual or polylingual, speaking the languages of the surrounding peoples such as Arabic, Turkish and Persian as a second language. The Kurds constitute approximately 7% of Iran's overall population. The Persians, Kurds, and speakers of other Indo-European languages in Iran are descendants of the Aryan tribes that began migrating from Central Asia into what is now Iran in the 2nd millennium BCE (see Encyclopaedia Britannica).

Iran constitutionally recognizes the Kurds' language and minority ethnic status, and there is no taboo against speaking Kurdish in public. Other different ethnic groups such as Turkish, Assyrians also live in Kurdistan region, including three main Kurdish provinces of Iran, Kurdistan, Kermanshah, and Ilam. These events, which are not the main subject of this article, along with the religious-political history of the Kurdistan, have created a unique mosaic of a wide range of ethnic and religious groups. Their existence in such a small land caused unfortunate and familiar disputes, though from a purely academic point of view, this circumstance creates an opportunity for research in many fields,

among which we can cite anthropology and ethno-pharmacology. The land itself is unique, in its natural diversity due to its geographical location at the meeting point of four countries (Iran, Iraq, Syria, and Turkey). Different climatic, phyto-geographic, and zoo-geographic zones converge here, creating great biological multi-diversity. The ethnic groups which compose this impressive mosaic in the Kurdistan Land retained to varying degrees their languages, religions, traditional food, clothing, ceremonial customs, and traditional medicine, including the use of certain medicinal materials. The diversity of medicinal substances in this land is not a new phenomenon. However, cultural traditions have dwindled over years, especially among Iran-dwelling Kurds. The former Iranian governments contributed heavily to cultural homogenization, by imposing an unwritten rule of the "melting pot" in order to transport Kurds from Kurdistan to all over Iran such as Khorasan province. This approach has accelerated the natural process of cultural assimilation during the last 100 years; but Kurdish tribes have held their customs and resisted against imposed changes, meanwhile people in Kurdistan province (Sanandaj) were more rigid than people of Kermanshah province against losing their ancestral customs such as their cloths, language, celebration, foods, and folklore medicine.

This article sets out to study, understand, record, hence preserve, ethnopharmacology of herbs that are used still in this region against internal parasites as colic remedies or well-known dewormer in both animals and men. According to the recent slaughter-based survey that have been done in Baseton Slaughter, the main slaughter house in Kermanshah province, the overall infection rate of gastrointestinal worms of small ruminants was reported 80% (Chalechale and Karimi, 2010). This high overall infection rate and high costs of chemicals anthelmintics and de-wormers; beside the low incomes of village inhabitant and nomadic Kurdish people, there has been a growing interest and necessity to conserve more information concerning the ethnomedicine and ethnopharmacology of antiparasitic herbs.

This report is a part of results of megaproject namely "Reviving Kurdish Ethnomedicine" that started in our department.

MATERIALS AND METHODS

Current research overview

During the last 40 years several ethno-botanical and ethno-pharmacological studies have been conducted with the aim of learning about and conserving traditional medicine and the medicinal uses of plants, animals, and minerals by different ethnic groups in globe and Iran (e.g., Rajae and Mohamadi, 2012). The surveies were done by different Kurdish language scholars of veterinary medicine that lived in different districts of Kermanshah and Kurdistan provinces of Iran. Also old and new Kurdish literatures that included information about the Kurdish ethnomedicine were gathered and reviewed.

Data collection

The research area included the most populated parts of the Kermanshah and Kurdistan provinces, mainly Kermanshah, Sahneh, Songhor, Dalahu, Javanrood, Sanandaj and Kamyaran. A purposive sample of 15 participants was created from interviewing of herbalists, herbal sellers, farm women's networks, grandfathers and grandmothers, organic farmers, shepherds, animal breeders and horse trainers, naturopaths, chiropractic men, holistic veterinarians, and other specialists in alternative medicine for animals. Among them only market herbalist refused or denied to participate in interviewing sessions more than 1 to 2 times. Their resistance to response may be due to the high competition that exists in markets. Kurdish people believe their ethnomedicine vigorously and nowadays their tendency toward ethnomedicine is intensified; partly because the increased knowledge of side effects of chemical drugs that used in Western Orthodox Medicine. This condition caused revitalization of herbalist's markets. When available, voucher specimens of plants established as remedies were collected by students. The major sources to find the scientific names of herbs were available literature like *Illustrated Dictionary of Therapeutic Plants in Kurdistan* (Amini 1997), *Flora Iranica* (Rechinger 2005), *Flora of Iran* (Assadi 2009), and herbarium samples that kept in Research Herbarium of Jihad-Keshavarzi Organization, Kermanshah province of Iran.

RESULTS

The results are summarized on Table 1. Twenty plants with documented antiparasitic activity were reported here. The plants were identified by scientific names, as well as by vernacular names and usual translations to English, if available. For each of the species, the parts used for treating parasitism, as gathered from ethnomedical reports published in *Flora Medicinal*, are listed.

DISCUSSION

This research contributes to a better introducing of the uses of antiparasitic remedies in traditional practice of Kurdish regions of Iran. We did not include similar studies that have been done in other regions of the world to avoid redundancy.

Blue grass (*Andropogon nardus*) grows in many parts of Kurdistan and its odor is very similar to the lemon's. This plant is known as "the onion of dogs" in Isfahan province of Iran. The decoction of this plant used as insect and flea repellants.

Worm-wood (*Artemisia multellina vill*) known as "Barzallng" in Kurdish folk got its name from the "God of horizon" or "Leng" that is the God of high regions in the fiction of Uraman zone in Kurdistan. The decoction of whole plant, approximately one table spoon, is used for all gastrointestinal worms in Kurdistan. Horses were de-wormed four

times per year with aerial parts of worm-wood powdered herbs added to the feed daily for one week. Alternatively worm-wood was given in equal combination with elecampane (*Inula helenium*) and thyme (*Thymus sp.*; Brøndegaard 1980).

Table 1. Plants used against parasites in the Kurdish ethno(veterinary) medicine

Scientific name	English name	Kurdish name	Host	Part used
<i>Andropogon nardus</i>	Blue grass	Ghmam; pishok	M,D,C,H,S	W
<i>Artemisia malteillina</i>	Holly wormwood	Barzallng	M,C,H	W
<i>Achilla mountanica</i>	Achilla noire	Varkamar	M,H	W
<i>Astragalus gossypinus</i> Fisch	Astragal	Charmg gavn	M,C,S,H	O
<i>Artemisia absinthium</i>	Absinthe	Martolakee	M,C,S	W
<i>Amygdalus lycioides</i>	Mountain almond	Vamkevy	M,D	B
<i>Cucurbita verrucosa</i>	Pumpkin of field	Kulaka khanmanee	M,S	B
<i>Cinchona officinalis</i>	Cinchona	Darmana larz	M	W
<i>Gossypium herbaceum</i>	Cotton plant	Pama	M,S,H	L,S,B
<i>Lens esculenta</i>	Lentil	Nisk	M	B
<i>Marrubium vulgar</i>	White horehound	Psslli	M	W
<i>Polygonum aviculare officinal</i>	Knot grass	Sichka	M,S,C,H	L,S
<i>Hippophae rhamnoides</i>	Willow thorn	Torou	M, S,C,H	O,B
<i>Pisium sativum</i>	Garden pea	Vlara, Nouka mar	M	B,L
<i>Allium ampeloprasum</i>	Wild leek	Knivally	M,S	W
<i>Satureja hortensis</i>	Summer savory	Mazra	M,S	L
<i>Tragopogon porrifolius</i>	Salsify	Sheng	M	W
<i>Salix spp</i>	Willow	Wirowll	M,S,C,H	W
<i>Allium moly</i>	Yellow garlic	Saidaran	M,D	W
<i>Rubia tinctorium</i>	Madder	Rownias	M	L

Note: M=human, C=cattle, D=dog, S=sheep, H=horse; W=whole plant, L=leaves, F=flowers, S=seed, B=berries, O=wood.

The decoctions of seeds and top flowers of *Achilla mountanica* (Varkamar in Kurdish) has therapeutic effects against *Ascaris*, *Oxyuris equi*, and *Enterobius vermicularis* and its poultice with the leaves of wild pistachio and Waybread (Barhang in Kurdish) are also used against bitings of snake, lizard, wasp, and scorpion. It has anti-inflammatory effects in these situations. Ethnoveterinary usages of other *achilla* spp. in mastitis, wounds and sternal abscess were reported in ruminants in British Columbia (Lans *et al.*, 2007).

The astragal (*Astragalus gossypinus* Fisch.) aqueous extracts are used for controlling housefly (*Musca domestica*). In Kurdistan, the smoky vapors of burned astragal used to treat of ocular and upper respiratory tract myiasis especially against *Ostrus ovis*. Astragal is useful to hang in stables and the milking room out of the animal's reaches. In addition to the antiparasitic activity of astragals, we found recent evidences implicating antimycotic and immunomodulatory activities of *Astragalus verus* Olivier. (black milkvetch; Siah gavan in Kurdish) in animal models (Mikaeili *et al.*, 2012a, 2012b; Nikbakht-Brufeni *et al.*, 2013).

Mountain almonds (*Amygdalus lycioides*) that grow in many high regions and forests of Kurdistan are mixed and grounded with the bark of brinjal (egg-plant) in vinegar and used as paste during 10 days to treat ulcerative lesions of leishmaniasis.

Extracts from powdered branches and leaves of Absinthe (*Artemisia absinthium*) are used by Kurdish people during millennium to treat tapeworm especially taenial infections. Pumpkin(*Cucurbita verrucosa*) fruit has dubbed in Iranian traditional medicine (*Gharabadin*) for its therapeutic effects in *diabetes mellitus* but in Kurdistan this used as anticholagogue, gastroprotective, and vermifugal plant. The therapeutic effects of pumpkin's fruits against the nematode *Haemonchus contortus* (adult parasite, eggs or infective larvae) were confirmed (Lans *et al.*, 2007).

Cinchona officinalis (Darmana larz in Kurdish) is a tree native to southeastern Asia, Indonesia and China. This plant is used for the production of quinine, which is antipyretic agent especially useful in prevention and treatment of malaria (Ravishankara *et al.*, 2001). During 1939, a species of *Cinchona officinalis* was cultivated by UK researcher around Darbandkhan Lake in Iraqi Kurdistan and Kalar. The people of these regions still use Cinchona for malaria (Lans *et al.*, 2007). Cotton plant (*Gossypium herbaceum*) is annual, herbaceous plant that grows in Northern Iran, Isfahan, and Fars also two wild varieties of this plant are observed in the west of Javanrood, Dodan, Mahro, and Lashgargah mountains while other variety is found in Shahu mountain located in Paveh and in the south of Uraman. The seed of cotton plant with oak's husk (Jaft in Kurdish) are used to increase appetite and libido. The decoction of leaves and seeds of cotton plant with seeds of Rock cherry (Beralouk in Kurdish) and Chamomile (Goulicani in Kurdish) are used to treat gastrointestinal ulcers and parasitic infections (Lans *et al.*, 2007).

A functional soup of lentil (*Lens esculenta*) with saffron (one teaspoon) and blackseed (50g) used by Kurdish people as antiparasitic meal. White horehound (*Marrubium vulgar*) is antiemetic, cholagogue, and vermifugal herb that distributed in Kurdistan. Knot grass (*Polygonum aviculare officinal*) is used as dewormer in livestock animals while for man one tablespoon of its decoction daily used. This decoction is composed of equal amounts (100 g) of knot grass, red rose (Gola Bakh in Kurdish), and Chamomile that mixed, grounded, and dissolved in 500 ml of boiled water. *Hippophae rhamnoides*, also known as Willow thorn or (common) sea-buckthorn, is dioecious tree that is grown in many parts of southern and central Kurdistan. Red berries of Willow thorn (Tarou in Kurdish) daily for 4 consecutive days are enough to kill gastrointestinal endoparasites. Fruits of Tarou and tobacco seed mixed and grounded in Sanandaj and Divandarreh

and the resulting paste is useful for hemorrhoid and wart. *Avicenna* had suggested that the inhalation of burned leaves and branches of Willow thorn is useful against ocular and nasal parasites (e.g., *Ostrus ovis*) in both animals and human. Intake of 10 fruits of Garden pea (*Pisum sativum*; Vlara in Kurdish) daily for five days is useful for treating gastrointestinal worms. *Allium ampeloprasum* (Knivally, in Kurdish) with edible animal oil (famous Kermanshah ghee) are beneficial for endoparasitism that shows symptoms such as emesis and edemas like bottle jaw in ruminants.

Summer Savory (*Satureja hortensis*) with the rhizomes of Ginger (Zanjaphell in Kurdish) and Chamomile have gastroprotective and taeniocidal effects. This plant grows in mountain regions of Uraman and Paveh in both wild and domestic types and is very popular among public. They believe that God of Anlayl, God of Assyrian and Babylonian, has sent this plant as a souvenir for his queen that was in far land. Salsify (*Tragopogon porrifolius*) is vermicial, antimicrobial, antizymotic, anticoagulant, and appetizer that used all over the Kurdistan.

The decoction of the yellow bark of willow (*Salix* spp.) is very curative for malaria and jaundice. However, products of willow (*Salix* spp.) have been widely used as analgesics or antipyretics in humans, probably attributable to the content of salicin and derivatives. *Salix* spp. also has a reputation as an anthelmintic for humans and livestock. Horses fed leaves are not supposed to get worms and a decoction of the bark is efficacious against flukes (trematode parasites) and diarrhea in sheep (Brøndegaard 1980).

The onion group (*Allium* spp.), have had widespread use against parasites in the Nordic as well as most other countries (Waller *et al.*, 2001) while in Kurdistan yellow garlic (*Allium moly*) due to its copper-containing compound is vermicial and gastroprotective remedy and also contains many mucilage and saponin components that made it suitable for famous local food, Burani's meal. Maddar (*Rubia tinctorium*) with Erioyarrow (Zardshabang in Kurdish) is used as a vermicial remedy in Kurdistan.

CONCLUSION

In conclusion, research on anthelmintic properties or protective effects of local plants against helminth parasites of livestock and human in the Kurdish tribes is very recent and limited at this stage to our study. However, many of the earliest written reports of anthelmintic properties of plants originate from this region of the world are so dispersed. Authors believe that we stay at the end of the chain of traditional medical knowledge and we try to gather, preserve and find the evidence-based Kurdish ethno(veterinary)pharmacology.

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