

Ethnomedicinal Importance of Family Lamiaceae and Family Rosaceae Among Local Communities of Dir Kohistan, Khyber Pakhtunkhwa, Pakistan

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ETHNOMEDICINAL IMPORTANCE OF FAMILY LAMIACEAE AND FAMILY ROSACEAE AMONG LOCAL COMMUNITIES OF DIR KOHISTAN, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

The present study was conducted to document the medicinal uses of Family Lamiaceae and Rosaceae in Dir Kohistan during the summer of 2016. Field visits were arranged to different resource-based areas of Dir Kohistan and plants were identified according to their phytogeographic locations. The study revealed that nine species of the family Lamiaceae and seven species of the family Rosaceae are used by the local community for the treatment of human ailments. They utilized these plants through personal experiences and ancestral prescriptions. The plants were used for different health disorders like kidney pain, lung infections, jaundice, as carminative, antimicrobial, antifungal, antiseptic, laxative, febrifuge, sedative and astringent agent. The study revealed that the medicinal flora of the area is under high pressure and was threatened locally due to population growth, habitat degradation, tourism, marketing pressure, over exploitation and unscientific methods of collection from their natural habitat.

Keywords: Lamiaceae, rosaceae, medicinal flora, human ailments, community, Dir Kohistan.

INTRODUCTION

Dir Kohistan is an evergreen part of Khyber Pakhtunkhwa Pakistan, situated at longitude 71-52' to 72-22' and latitude 35-9' to 35-47' in the Northern portion of River Panjkora. Dir Kohistan is bounded by Swat Kohistan on the west, Dir on the south, Hindu Raj range on the north and northeast, upper Swat on the east, Torwal and Gabral on the east and Chitral on the North. The study area is mountainous, uneven and rugged. Between Sheringal and Kalkot, a major portion of the valley is narrow but from Kalkot onwards in the north, the valley

again expands up culminating in some of the fine open spots like Roshai and Bathat at Kumrat (Anonymous., 1996). The area has rich, valuable and useful sources of medicinal plants, some of which are documented in this study. The upper portion of the area is lacking basic health facilities and the local community is dependent on traditional herbal medicines (Hakims and Dawa Khana etc).

Plants are the major components of traditional and modern medicine and are used for therapeutic purposes since the beginning of human civilization. In Pakistan, herbal medicines are used in tibia

Dawa khana by hakims but unfortunately, little attention were given to the ethnobotanical aspect of medicinal plants. In rural communities, medicinal plants are used for the treatment of different human and livestock health disorders mainly because of their availability and the poor economic condition of the local people. The rural areas mostly lack basic health facilities and therefore they are dependent on herbal medicines (Ullah 2000; Ibrar et al., 2015). They are mostly collected in fresh form due to the fear of losing/decrease of their medicinal properties (Khan 2012). The pressure on medicinal plant collection and trade is increasing with rapid growth in population and lack of other earning sources in the area. The local inhabitants of the area are collecting medicinal herbs and exporting them to other cities/parts of the country. Therefore, important medicinal plants of the area are becoming rare and endangered. Over-exploitation, overgrazing, population growth, loss of habitat, commercial trade, increased marketing pressure and involvement of unskilled persons in the collection and harvesting of medicinal plants are the main reasons responsible for the extension of these important medicinal plants (Midrarullah et al., 2014, Kalsoom et al., 2020).

The purpose of the current study was to carry out an ethnobotanical survey of the area to document the ethnomedicinally important plants of Family Lamianace and Family Rosaceae.

MATERIALS AND METHODS

The study was conducted during the summer of 2016. Field visits were arranged to different resource-based areas of Dir Kohistan and plants were identified according to their phytogeographic locations. Digital camera *FineFix* was used to sketch the plants in their natural habitat. Plant samples were collected and specimens

were pressed in newspapers. The newspaper was changed from time to time and after drying the specimen were mounted on standard herbarium sheets. Identification of the specimens was carried out with the help of available literature (Nasir and Ali, 1971-91; Steward, 1972). A voucher number was given to each plant and then the herbarium sheet along with plants and photos were deposited in the herbarium of the Department of Biotechnology, Shaheed Benazir Bhutto University, Sheringal, Upper Dir.

In the field survey, local inhabitants, pansaries (local medicinal plants sellers), the herbalist 'Hakims' (physicians of eastern medicines), were also interviewed by using a questionnaire. Local utilization of the plants, availability, parts of the plant used, rate of consumption, method of preparation of herbal medicine, economic and marketing of medicinal flora were also recorded.

RESULTS AND DISCUSSION

Plants are used for the treatment of different health disorders since the beginning of human civilization (Baquar, 2001; Khan et al., 2012; Gul et al., 2014). Plants are used both in traditional (homeopathic and Unani etc) and modern medicines (Sher and Hussain 1998; Kalsoom et al., 2020). In Pakistan, traditional herbal (Unani) medicine is popularly used by a large segment of the population, especially in rural areas. The northern areas of Pakistan are gifted with rich floral diversity (Sher et al., 2003, Midrarullah et al., 2014).

The present study documented 16 plant species belonging to the family Lamiaceae (9 species) and family Rosaceae (7 species). The local inhabitants of the area were using these herbal medicines for the treatment of different ailments (Table 1). The dried powdered plant of *Ajuga bracteosa* Wall. ex Benth. is used as an anti-

inflammatory, analgesic and anti-coagulant. The decoction of the leaves is used for the treatment of sore throat, kidney pain, angina, aches and jaundice. Similar results were also reported by Kayani et al., (2016), who worked on the medicinal properties of *Ajuga bracteosa*. The results are also in line with the findings of Raja et al., 2020, who interviewed 150 local inhabitants and reported 50 plant species. The leaves of *Ajuga parviflora* Benth, were grinded and the decoction is used for the treatment of hepatitis, jaundice, kidney pain and sore throats. *Isodon rugosus* (Wall. ex Bth.) Codd is locally used for the treatment of gastrointestinal, respiratory and cardiovascular-related problems. It is also used as a blood purifier, antiseptic and for the treatment of hepatitis. Similar results were also reported by Ahmad et al., (2011), who listed 140 plants of ethnobotanical importance from the tehsil Kabal, Swat District. Raja et al., (2020) conducted an ethnobotanical survey of 50 wild plant species of Muzaffarabad, Azad Jammu & Kashmir, Pakistan and documented their medicinal uses.

The species *Mentha longifolia* L. is used as stimulant, antirheumatic and carminative agent. It is also used for the treatment of lung infections, headaches, coughs, colds, fever, nausea and urinary tract infections. Similar properties of *Mentha longifolia* L. were also reported by Anwar et al., (2019) who reviewed nutraceutical uses of the Genus *Mentha*. The results showed that *Mentha spicata* L. is used by the local inhabitants as antirheumatic, antimicrobial, antifungal, aromatic, carminative, stimulant, agent and also for the cure of stomachache. The antimicrobial and antioxidant properties of *Mentha spicata* were also reported by Poonam and Anshu (2012). The paste of the roots of *Micromeria biflora* (Buch. Ham. ex D. Don) Benth. was used as poultice to treat

wounds and is also pressed between the jaws to treat toothache. The juice obtained from the leaves of *Otostegia limbata* (Bth.) Boiss. is used for the treatment of ophthalmia and children's gums. The dried leaves are mixed with butter and used for wound healing. The fresh leaves of *Salvia moorcraftiana* Wall. ex Bth. are locally considered as healing agents for wounds and are tied around the wounds as poultices. The dried roots are powdered and are taken with water for the treatment of cough and cold. Similar results were also reported by Ibrar et al., (2015), who conducted an ethnobotanical survey of medicinal plants of Malakand pass hills, Khyber Pakhtunkhwa and reported medicinal uses of 92 plant species belonging to 56 families of the area.

The study revealed that the fruits of *Thymus linearis* Benth. are used for lung problems, especially bronchial troubles and coughs. The stolon of *Cotoneaster microphyla* Wall.ex Lindl. (in powdered form) is used as an astringent and taken twice a day with a glass of water. The fruits of *Fragaria nubicola* Lindl. are edible and locally used as laxative. These finding are in line with that of Hussain (1992), who reported 63 medicinal plants from paladri-ponch, Azad Kashmir, along with chemical constituents, and local medicinal uses.

The fruit of *Pyrus communis* L. is used as an astringent, febrifuge and sedative agent. The fruits are edible and have commercial value. The fruits of *Pyrus pashia* Ham. ex D.Don are locally used as astringent, febrifuge, laxative and sedative. Parallel results were also documented by Qureshi et al. (1997), who worked on the medicinal flora of District Chitral, Khyber Pakhtunkhwa and reported ethnobotanical uses, flowering period practical application of each species.

Table 1: Ethnomedicinal Importance Of Family Lamiaceae And Family Rosaceae Among Local Communities Of Dir Kohistan, Khyber Pakhtunkhwa, Pakistan

Family	S. No	Botanical Name	Local Name	Part Used	Habit	Availability	Local Medicinal Uses
Lamiaceae	1	<i>Ajuga bracteosa</i> Wall. ex Benth.	Khwaga bootei	W.P	Herb	3	Anti-inflammatory, analgesic, coagulant, Treat throat sore, kidney pain jaundice and wound healing
	2	<i>Ajuga parviflora</i> Benth.	Tarkha booti	W.P	Herb	2	Treat throat sore, kidney pain, hepatitis
	3	<i>Isodon rugosus</i> (Wall. ex Bth.) Codd	Sperkai	Br	Shrub	2	Antiseptic, blood purifier, hepatitis treatment, gastro-intestinal and respiratory problems
	4	<i>Mentha longifolia</i> (L.) Huds.	Vallanay	L, St	Herb	5	Stimulant, antirheumatic, aromatic agent, stomachache and carminative. Lung infections.
	5	<i>Mentha spicata</i> L.	Podina	L, St	Herb	5	Stimulant and carminative
	6	<i>Micromeria biflora</i> (Buch.-Ham. ex D. Don) Benth.	Narai Shamakai	R	Herb	3	Diuretic, use for toothache, wound healings and earache.
	7	<i>Otostegia limbata</i> (Bth.) Boiss.	Spin Azghay	L	Herb	3	Treat ophthalmia, wound healing
	8	<i>Salvia moorcraftiana</i> Wall. ex Bth.	Khurdug	L, R	Herb	3	Healing agent. Remedy for cough and cold
	9	<i>Thymus linearis</i> Benth.	Sperkai	Fr	Herb	2	Use for colds, cough and bronchial troubles
Rosaceae	10	<i>Cotoneaster microphyla</i> Wall.ex Lindl.	Kachgullay	St	Herb	3	Astringent
	11	<i>Fragaria nubicola</i> Lindl.	Da zmake toot	Fr	Herb	2	Locally used as Laxative
	12	<i>Pyrus communis</i> L	Nashpatai	Fr, W	Tree	3	Febrifuge, Sedative and astringent
	13	<i>Pyrus pashia</i> Ham. ex D.Don	Tangai	Fr, W	Tree	4	Laxative, astringent, febrifuge and sedative
	14	<i>Rosa brunonii</i> Lindl.	Shangari	Fl, L	Shrub	3	Aprodisiac, use in skin and eye disease
	15	<i>Rosa nanothamnus</i> Boulenger	Zangali Gulab	Fl	Shrub	3	Use as astringent
	16	<i>Rubus fruticosus</i> Hk.f	Karwara	Fl, R	Shrub	4	Treatment of diarrhea and whooping cough

Key: L:-Leaves; St : Stem; Fr : Flower ; R – Root; Rh : Rhizome; S –Seed; W.P:-Whole plant; 1 :-Very rare; 2 -Rare 3: Frequent; 4 Common; 5 –Dominant.

The flowers of *Rosa brunonii* Lindl. is locally used in bilious infections and skin burning and are considered an effective aphrodisiac agent. The powdered roots are used in skin and eye diseases. Similar results were also documented by Ali et al., (2018), who describe ethnobotanical domain of the Swat valley, Pakistan. The oil obtained from the seed of *Rosa nanothamnus* Boulenger is used as an astringent. The flowers of *Rubus fruticosus* Hk.f are dried and used in powdered form as an aphrodisiac agent. The decoction of the root is also used for the treatment of diarrhea and whooping cough. Similar findings were also reported by Khan and Shinwari (2016), who reported ethnomedicinal uses of 67 plants of Pakistan belonging to the family Rosaceae.

CONCLUSION AND RECOMMENDATIONS

Herbal medicine plays a pivotal role in the health care of the local inhabitants of Dir Kohistan. They used medicinal plants for the cure of different health disorders. In the present study 9 species of the family Lamiaceae and 7 species of the family Rosaceae were used by the local inhabitants for the treatment of kidney pain, sore throat, as stimulant, antirheumatic, carminative, laxative, sedative and astringent agents. The senior inhabitants of the area have profound knowledge about medicinal plants of the area but the middle age and youngsters are uneducated about the importance of medicinal plants. They have poor knowledge about the collection, cultivation, processing and preservation of medicinal plants and resulting in the great threat to the medicinal flora of the area. There is a dire need for proper training cultivation, preservation, harvesting and marketing of these medicinally important plants.

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AUTHOR’S CONTRIBUTION

Midrarullah designed the study and conducted field survey. Attaullah collected plant specimens. Akhtar Aman and Hamid Hussain helped in collection and preservation of plant specimens. M. Afzal Naeem contributed in the identification of plant specimens.

CONFLICT OF INTEREST

The authors declare no conflict of interest

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