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Ethnomedicinal Plants and Traditional Knowledge of Some Phenorogams of Lower Kaghan Valley, District Mansehra, Pakistan

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ABSTRACT

The aims of this work to investigate the traditional knowledge of ethno medicinal plants of Lower Kaghan Valley, district Mansehra, KP, Pakistan. The local residents of the area used natural resources, which includes plants, for cure and other medical purpose. The insufficient availability of medical facilities for health care, the indigenous people of the area used these plants for cure of diseases in partly. The study mainly focused on the information regarding indigenous uses of plants for medicinal purposes. Farmers, herdsmen and other local people are interviewed to collect the traditional knowledge of different plants. The study revealed that a total of 46 plant species belonging to 44 genera and 36 families were recorded. Herbaceous growth form was used most frequently and dominantly for the treatment of different ailments. The highest number of plants was from family Polygonaceae with 4 species followed by Lamiaceae with three species. Furthermore, remaining families contributed in less than 3 species each. The inhabitants of the valley utilize 46 medicinal plant species for treating more than 50 human and 20 veterinary ailments.
KEY WORDS: Medicinal plants, indigenous knowledge, Lower Kaghan Valley, Mansehra.

INTRODUCTION

People-Plants Interaction and Its Uses: A Science of Four Words "Ethnobotany" is the scientific study of relationships that exist between people and plants [1]. The term "Ethnobotany" was first coined by US Botanist "John William Harshburger" in 1895 to the study of plants used by primitive and aboriginal people. The plants used for medical purposes, can be classified into two categories: The plants of the first category is used by the local medical experts in various crude formulations by giving some relief to the local population in the developing countries. The second category is used by pharmaceutical companies for their active ingredients [2]. In Pakistan, the province Khyber Pakhtunkhwa, the district Mansehra located and is near to the city of Abbottabad. It is one the attractive area for the tourists on the Karakorum highway which leads to China. Besides this, it is also a major transit point to the Northern areas and locations such as Kaghan, Shogran, Lake Shaiful Malook and Babusar Top. The Kunhar river catchment area is commonly known as "Kaghan Valley". The Kaghan Valley is situated 161Km away from Mansehra city and is long scenic wonderland. The total area of the valley is 1627Km^2. The valley is bounded on the East as well as on Southern side by Azad Jammu and Kashmir, on the North by Chillas and Gilgit Baltistan and on the West by Allai, Kohistan Siran Forest division (Fig. 1). The area is totally rugged and mountainous. The study area according to the climate falls in the following ecological zones: The temperate (moist and dry), sub-alpine birch forest, alpine and snow covered peaks and sub-tropical Chir-Pine. The valley has highest peaks which include Malika Parbat (5,291 m), Musa Ka Musalla (4,046 m) and Makra Top (3,885 m), with averagely 22 (minimum) and 40°C maximum temperature. The coldest months include, November, December, January and February, and the remaining are moderate [3]. In Kaghan Valley, 12 genera of gymnosperms are used medicinally by the inhabitants of the valley for eliminating different routine ailments [4]. In the Shogran valley, local people rely on about 107 plant species for medicinal purposes [5].

Pakistan has a varied climate, quite suited to occurrence of variety of medicinal plants. The survey conducted by PFI showed about 320 species of medicinal plants are growing in different provinces of Pakistan. Perusal of literature revealed that a lot of work has been done on the medicinal plants in Pakistan [6,8-31]

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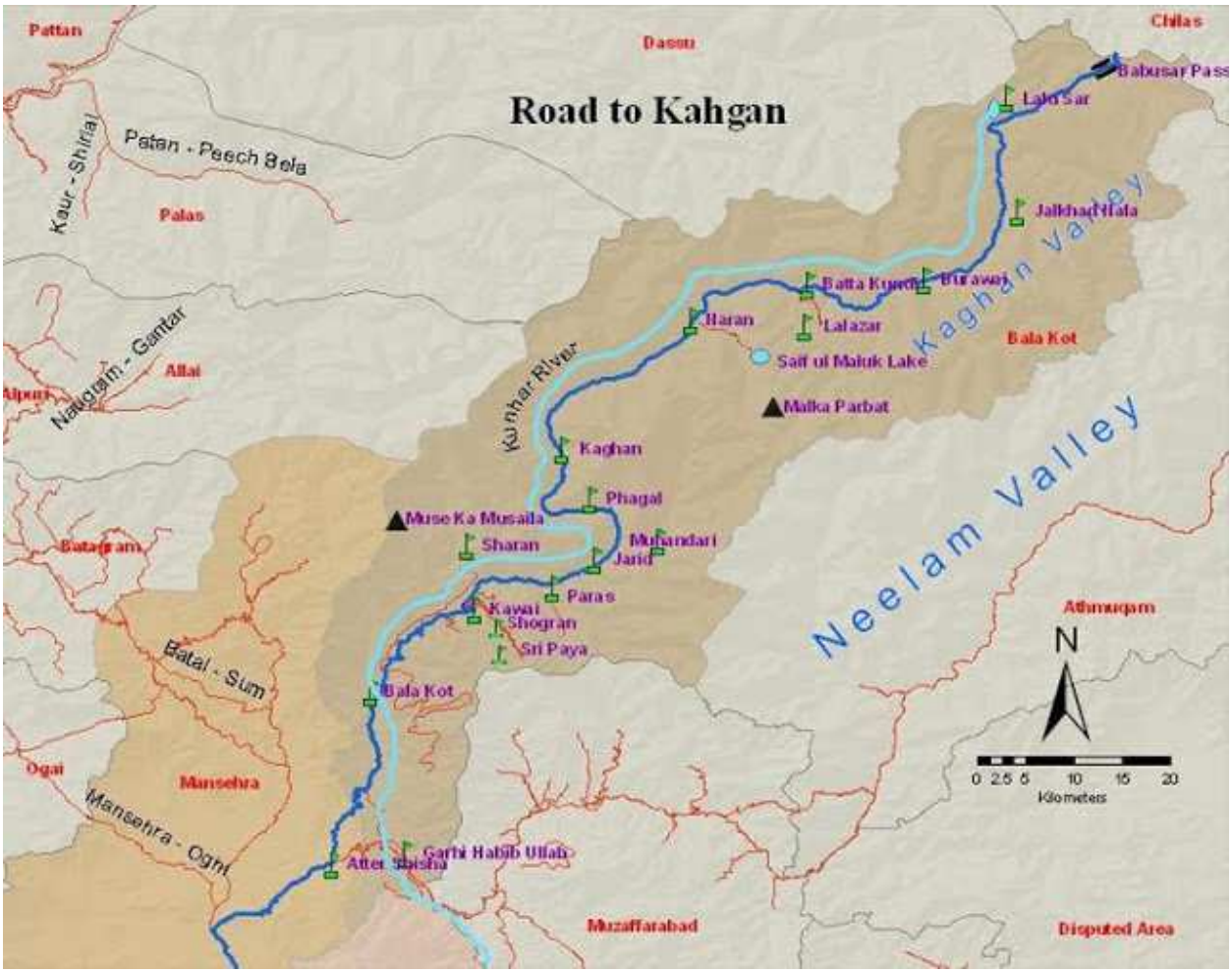


Fig. 1. Map of the study area.

MATERIALS AND METHODS

This study was carried out in Lower Kaghan Valley, Tehsil Balakot of Mansehra District in Khyber Pakhtunkhwa province of Pakistan [8]. The area was visited for plant collection during flowering season in the year 2011 in Kaghan valley. The studied areas are Sungar, Kholla, Double Mor, Jammu Nakka, Ghanool and Siri Paye.

In each trip, the plants were collected according to the season from different localities of the research area. Local names, ethno medicinal uses and other related information about the plants were asked from the aged persons, herdsmen, farmers and other local persons. During plant collection cutters, gloves, scissors and plant pressers were used. Photography of the plants was also done with the help of a digital camera. The collected plants were poisoned, pressed, dried and mounted on herbarium sheets [32-33] The plants were identified with the help of Flora of Pakistan [34-35] and other available literature. The plant specimens were deposited in the herbarium of Govt. Post Graduate College No. 1 Abbottabad (KP) Pakistan.

RESULTS AND DISCUSSION

Pakistan is blessed with a diverse flora of about 6,000 species of flowering plants. The present investigation revealed that 46 species belonging to 44 genera and 36 families have been recorded from the study area (Table 1). As indicated in table 1, herbaceous growth form was used most frequently and dominantly for the treatment of different ailments. Similar results were reported by [29] from Manoor Valley, Mansehra. The highest number of plants is from family Polygonaceae with 4 species, followed by Lamiaceae with 3 species, 5 families with 2 species each and remaining 29 families with 1 species each (Fig. 2). While other researchers like Ijaz [24-26] reported Asteraceae as

the leading family with maximum number of medicinal plants species to cure various diseases from Abbottabad (Pakistan). The plants are indispensable to human life. Traditional knowledge regarding all 46 medicinal plant species is very important as they are being potentially used by the local people for more than 50 human and 20 veterinary ailments. The extract of *Oxalis corniculata* is used as a perfect remedy for jaundice. Similar results have been showed by [35] from Dir Kohistan Valley, Pakistan. The rind of fruit of *Punica granatum* L. is used for diarrhea, dysentery and to relieve kidney pain. Similar results have been showed by [8] from Kaghan Valley (Mansehra) Pakistan. There is a local medicinal ailment system in Pakistan which is driven by "Pansaries" or "Hakims". Herbs are used as a whole but in case of shrubs and trees a particular part is used. Leaf is the most frequently used part in the preparation of medicinal remedies. Other important uses of plants include fodder, fuel, ornamental purposes, cosmetics, miswak, narcotics, poisonous, shade trees, soil binder, anti-lice, anti-dandruff and timber for construction purposes etc. Medicinal plants are also exported to different countries as Pakistan is rich with this wealth.

Conclusion

The study suggest that these plants are also being used for multiple purposes e.g., fodder, fuel, timber wood, vegetables, edible fruits, shade trees, ornamental, cosmetics and timber for construction purposes etc. In short, it is inferred from survey results that ethno medicinal knowledge is confined to only old age persons (above 50 years of age) in the localities of Lower Kaghan Valley while younger people knew very less about the use of medicinal plants.

Acknowledgment: The authors are highly thankful for the local community member for sharing their important traditional knowledge.

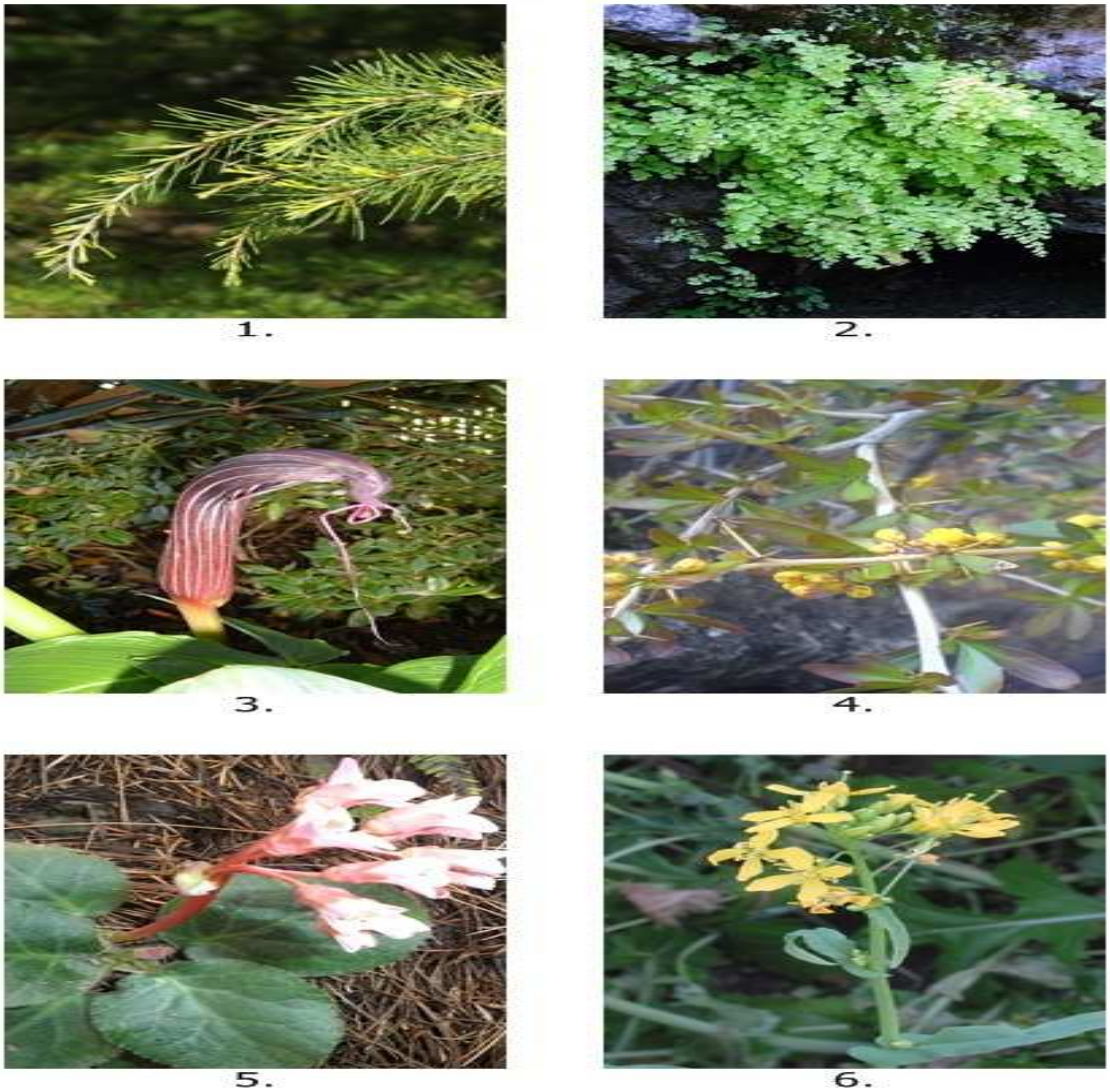
Table 1. Ethno medicinal plants of Lower Kaghan Valley District Mansehra, KPK, Pakistan

S.No.	Botanical Name	Ver.Name	Family	Part used	Ethno medicinal uses
1.	*Abies pindrow* Royle.	Rewar/Paludar	Pinaceae	Bark,leaves and cones	Purgative, astringent, anti diarrhoeal, febrifuge and expectorant.
2.	*Adiantum capillus-veneris*	Kakoa	Adiantaceae	Fronds with rhizomes	Diaphoretic, emollient, pectoral, repellent, expectorant, diuretic, febrifuge and anti dandruff.
3.	*Arisaema costatum* (Wall.)	Sorganda	Araceae	Roots and rhizome	Astringent, febrifuge, antidiarrhoeal, used for fever and flu in cattles.
4.	*Berbaris lycium* Royle	Sumbal	Berberidaceae	Roots, fruit and bark	Antibacterial, anticancerous, carminative, febrifuge, ophthalmic, blood purifier, antidiabetic and to cure blisters in mouth.
5.	*Berginia ciliate* (Haw.)Stemb.	Patpawa	Saxifragaceae	Dry roots	Lithotripic, ophthalmic, anti diarrhoeal, poultice, tonic, diuretic and used against urinary troubles.
6.	*Brassica compestris* L.	Sarson	Brassicaceae	Whole plant	Galactgogue, aperient, diuretic, rubefacient, milk production in cattles.
7.	*Caltha indica* Cambess	Thutha	Ranunculaceae	Whole plant	Anodyne, Antispasmodic, diaphoretic, expectorant, rubefacient and improves healing of wounds.
8.	*Capsicum annum* L.	Hari mirch	Solanaceae	Fruit	Antihaemorrhoidal, antirheumatic, digestive, irritant, rubefacient, sialagogue anti prevent skin allergy.
9.	*Cynodon dactylon* (L.)	Khabal	Poaceae	Whole plant	Antimicrobial, antiviral, antidiabetic, galactogogue, antitoxic, analgesic, antihelitosis and antidysenteric.
10.	*Daphne mucronata* Royle	Kutilal	Thymelaceae	Young leaves and bark	Antitumerous, toxic, tonic, and used for strengthening the bones.
11.	*Diospyrus lotus* L.	Amlok	Ebenaceae	Fruit and bark	Febrifuge, sedative, anti tumerous and used to relieve colic, fever etc.
12.	*Dryopteris racemosa* (Spreng.)	Kunji	Dryopteridaceae	Fronds	Anti fungal, febrifuge, anti leprosic, anti diarrhoel and used against ulcer, stomach problems, fever and chill.
13.	*Erysimum melicentae* Dunn.	Jangli sarson	Brassicaceae	Whole plant	Galactogogue, rubefacient, anti toxic, laxative, diuretic and increase milk production in cattles.
14.	*Euphorbia wallichii* Hk. F.	Dhodal	Euphorbiaceae	Leaves and twings	Laxative, astringent, rubefacient, toxic, highly allergic, used against the snake bite and scorpion sting.
15.	*Foeniculum vulgare* Mill.	Saunf	Umbelliferae	Leaves and dry fruits	Analgesic, antiflammatory, anti spasmodic, aromatic, Carminative, diuretic, emmenagogue,

					expectorant, galactogogue, hallucinogenic, stimulant, stomachache, juice of the fennel is used to improve the eye sight and in case of chronic constipation.
16.	*Frageris vesca* L.	Khatmirch	Rosaceae	Whole plant	Anti diarrhoeal, febrifuge, anodyne, anti cancerous, anti toxidant, neutralizer, anti bacterial, laxative, tonic, used against cramps and used to improve apetite.
17.	*Geranium wallichianum* D.Don	Rattenjot	Geranaceae	Dry roots	Astringent, odontalgic, poultice, used against stomach pain and joint pain.
18.	*Heracleum canescens* Lindl.in Royle	Dilphaki	Umbelliferae	Seeds, leaves and floral parts	Neutralizer, astringent, antispasmodic, refrigerant, remedy for stomachache, used against heartburn.
19.	*Incarvillia emodi* (Royle ex Lindle.)	Jan-e- adam booti	Bignoniaceae	Leaves and floral parts	Febrifuge, anti acid, neutralizer, astringent, refrigerant and used to lower the body temperature.
20.	*Indigofera gerardiana* Wall.	Kanthee	Leguminosae	Roots	Antibacterial, anti fungal, insecticidal, herbicidal, to cure cramps, applied on wounds for healing, to relieve stomachache and to cure eczema.
21.	*Iris hookeriana* Foster	Chalundri	Iridaceae	Whole plant	Antihelmintic, febrifuge, refrigerant, anti oxidant, applied on burning wounds, paste of the plant is applied on boils and tumours.
22.	*Isodon rugosus* (Wall.ex Benth)	Chitpatra/Pisomar	Lamiaceae	Whole plant	Aromatic, repellent, paste is applied on goats to get rid of ticks and lices.
23.	*Juglans regia* L.	Akhrote	Juglandaceae	Leaves, bark and fruit	Anti oxidant, antidiabetic, emollient, osteoblastic, antiproliferative, used to lower blood pressure and applied on teeth as "dandassa".
24.	*Mentha longifolia* (L.)	Chita podina	Lamiaceae	Roots and leaves	Carminative, flavouring agent, stimulant, antiseptic, anthelmintic, antispasmodic,antidiarrhoeal and used against "aphara" in cattles.
25.	*Morchella esculenta* (L.Pers).	Guchi	Morchellaceae	Fruiting body	Antioxidant, antitumerous, tonic, antidiuretic, anodyne, used to relieve kidney pain.
26.	*Olea ferroginea* Royle.	Kahu	Oleaceae	Leaves	Astringent, antiperiodic, rubefacient, antidiabetic,used against toothache.
27.	*Oxalis carniculata* L.	Khatgrora	Oxalidaceae	Whole plant	Antoscorbic, refrigerant, cooling agent, used against stomachache used to relieve heartburn.
28.	*Paeonia emodi* Wall. Ex Royle	Mamekh	Paeoniaceae	Dry roots	Antispasmodic, blood purifier, Cathartic, emetic, uterine, tonic, antirheumatic, used against backbone.
29.	*Phytolacca latbenia* (Moq.)H. Walter	Lubbar	Phytolacaceae	Whole plant	Narcotic, purgative, antiflammatory, anti fungal, antiviral and anti rheumatic.
30.	*Pinus roxburghii* Sargent.	Chir	Pinaceae	Resin and needles	Emollient, aromatic, antiseptic, deodorant, stimulant, anthelmintic, digestive, diuretic, expectorant, anodyne, purgative, rubefacient, vermifuge and used to cure cough and asthema.
31.	*Polygonum bistorta* L.	Masloor	Polygonaceae	Roots	Astringent, demulcent, diuretic, febrifuge, laxative, styptic, used to cure excessive blood discharge in females and improves wound healing.
32.	*Primula denticulate* Sm.	Ramtootia	Primulaceae	Fresh roots	Refrigent, febrifuge and diuretic.
33.	*Prunus avium* L.	Baloori phall	Rosaceae	Leaves, fruit and resin	Antitussive, astringent, diuretic, tonic and resin is used to cure persistant cough.
34.	*Punica granatum* L.	Daruna	Punicaceae	Bark and rind of fruit	Stomachic, cardiac, diuretic, refrigerant, astringent, anthelmintic, antidiarrhoeal and used to treat kidney pain.
35.	*Ranunculaceae muricatus* L.	Barea	Ranunculaceae	Whole plant	Antiasthematic, antirheumatic, febrifuge, antiseptic and used against eczema.
36.	*Rumex acetosa* L.	Khatri	Polygonaceae	Leaves and roots	Anthelmintic, antiscorbutic, astringent, depurgative, diuretic, febrifuge, laxative, refrigerant, stomachic, applied on ringworm and used against kidney stones.
37.	*Rumex dentatus* L.	Hola	Polygonaceae	Young leaves	Antiseptic, astringent, purgative and used against allergies.
38.	*Rumex hastatus* Don.	Khatimal	Polygonaceae	Leaves and twings	Astringent, purgative, anti-hepatitus, antiseptic, antidiarrhoeal, against throat infection and used in chatni and sauces.

39.	*Silene gonosperma* Subsp. Himalayensis(Rohrb Bocquet)	Murkan	Caryophylaceae	Whole plant	Blood purifier, aromatic, astringent, laxative and diuretic.
40.	*Skimmia leureola* (DC.) Siebold & Zucc. ex Walp	Neer	Rutaceae	Leaves	Aromatic, astringent, pungent, antidiabetic and used to give "dhoof" to remove bad evils.
41.	*Thymus linearis* Benth.	Chikar/Bharjameeri	Lamiaceae	Green leaves and buds	Stomachic, emnogogue, carminative, antispasmodic, tonic, vermifuge and antirheumatic.
42.	*Valeriana jatamansii* Jones	Mushk bala	Valeriaceae	Dry tuberous roots	Remedy for hysteria, hypochondriasis, nervous unrest, analgesic and anodyne.
43.	*Verbascum Thapsus* L.	Gadikun	Scropholoriaceae	Whole plant	Anodyne, antiseptic, astringent, demulcent, emollient, expectorant, narcotic anti diarrhoeal.
44.	*Vibernum grandiflorum* Wall ex DC.	Guch	Caprifoliaceae	Green leaves and buds	Antispasmodic, laxative, blood purifier and anodyne.
45.	*Viola serpens* Wall. Ex Ging	Thandi jari/ banafsha	Violaceae	Dry flowers and roots	Expectorant, analgesic, anti-inflammatory, antiseptic, nauseatic, vasodialator, sedative and anti pyretic and used against jaundice.
46.	*Viscum album* L.	Neelatari	Loranthaceae	Berry, leaves and twings	Antiseptic, aphrodiasic, cardiotonic, laxative, diuretic and used against tumor and boils.

Plate I



1. Abies pindrow, 2. *Adiantum capillus-veneris*, 3. *Arisaema costatum*, 4. *Berberis lycium*, 5. *Berginia ciliata*, 6. *Brassica campestris.*

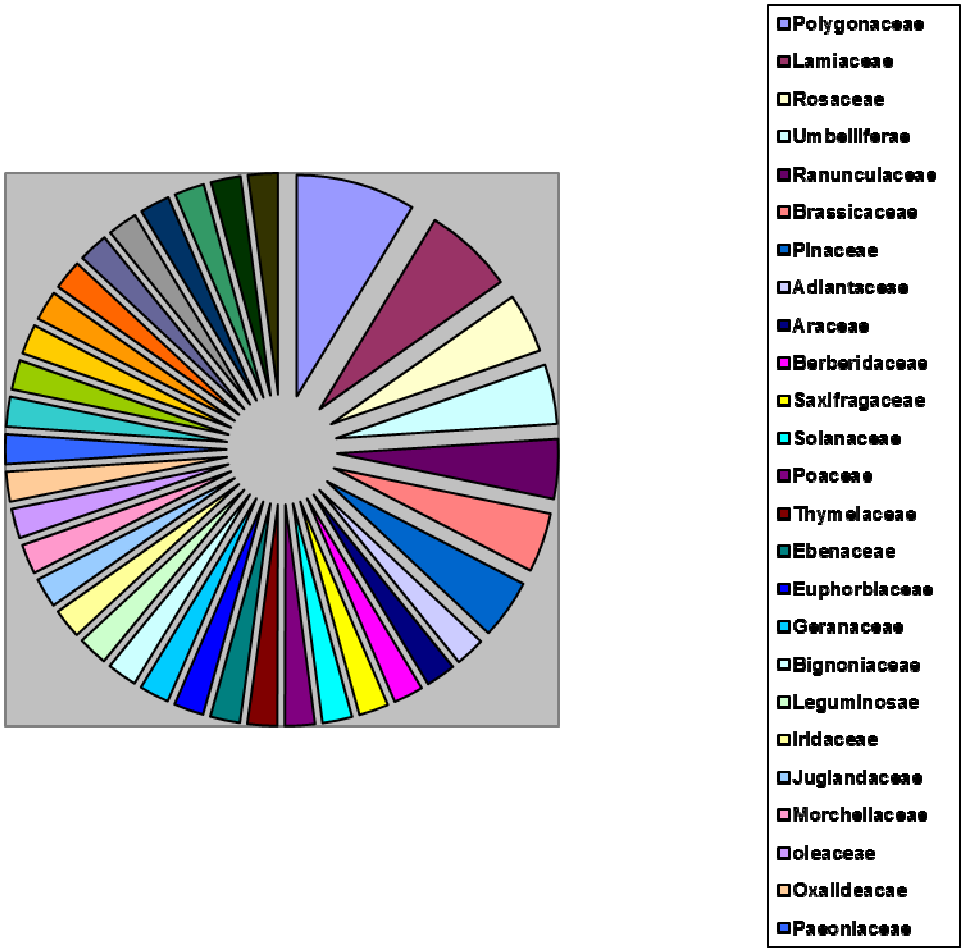


Fig 2: Floristic Diversity of Lower Kaghan Valley.

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