

Survey of some ethno-botanical plants used to treat human ailments in Sharis district, west of Yemen

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Abstract

The present paper deals with some important medicinal plants in Sharis district, West of Yemen. The study was carried out during the period from September 2015 to March 2016. A total of 81 medicinal plant species belonging to 78 genera and 48 families were collected and recorded for their use in treating many ailments. These folk medicinal plants were mostly used for the treatment of asthma, abortion, cough, cold, chicken pox, constipation, dysentery, diarrhea, diabetes, eczema, fever, and fracture of bone, headache, heart disease, itches, jaundice, menstrual disease, paralysis, piles, skin diseases, snake-bite, sex problems, toothache, vomiting, worm, wound and others. In many cases, leaves of the medicinal plants were found leading in terms of their use followed by Root, whole plant, Seeds, fruits, flower, Bark, and latex. Each species has a scientific name, local name, habit, family, ailments to be treated, mode of treatment and part(s) used are provided.

Keywords: ethno-botanical plants, traditional uses, sharis, yemen

1. Introduction

Ethno-botany is the study of relationship between plant, people and environment. In broader aspect, ethno-botany is the cultural study of how the people perceive the plants, give names, use and organize the information about the plants around them [13]. Plants are essential for human beings as they provide food, fuel, fodder, timber, fruit and medicines [4, 7, 19]. As compared to animals, plants are more important for us due to their diverse collection of biochemical with a variety of potent biological activities [6, 7, 13, 16, 19]. In traditional healing systems, wild medicinal plants have been used for centuries [5]. Different modes of application have been adopted by local people to exploit the natural flora [3]. In many rural communities, the use of wild flora for medicine and food is prevented since times [28]. Thus ethno-botanical knowledge is not only helpful for the conservation of biodiversity and traditional cultures but also useful in drug development and health care. Information obtained from indigenous people can be used as a guideline for drug development under the assumption that a plant which has been widely used for longer period of time may have an allopathic application [6, 18].

Utilizing the healing properties of plants is an ancient practice. People in all continents have long used hundreds, if not thousands, of indigenous plants for treatment of various ailments dating back to prehistory. These plants are still widely used in ethno-medicine around the world.

Some researchers have conducted a number of studies on traditional herbal medicine in some Arab countries such as Jordan, Syria, Lebanon, Yemen, Egypt, and etc. Those researchers are (Abu-Irmaileh & Afifi, 2000; Lev & Amar, 2002; Sanagustin, 1983; Alrawi & Chaakravarty, 1964; Hoper, 1937; Kotb, 1985; Abu-Chaar & Ades, 1961; Eddouks *et al.*, 2002; Heneidy & Bidak, 2004; Al-Serage, 2006;

Sogil, 2013; Al-Dubaie, *et al* 1995). [1, 2, 8, 10, 11, 17, 20, 21, 22, 23, 26, 29]

Recent studies have reported that less than 200–250 species of plants are still in use in Arabic Traditional Medicine for treatment of many diseases in the Arab world [23, 14, 25]. In addition, traditional medicine still remains the main resource for a large majority (70%) of the people in Yemen for treating health problems and a traditional medical consultancy including the consumption of the medicinal plants has a much lower cost than modern medical attention [8]. He also stated 800 identified medicinal plant species in the Yemeni Flora. The wide spread use of traditional medicine among both civilized and rural population in Yemen could be attributed to cultural acceptability, efficacy against certain type of diseases, physical accessibility and economic affordability as compared to modern medicine. Yemeni traditional medical system is characterized by variation and is shaped by the ecological diversities of the country, socio-cultural background of the different ethnic groups as well as historical developments, which are related to migration, introduction of foreign culture and religion.

2. Materials and methods

2.1 Study Area

The basin of Sharis Valley is located in the west of Yemen, in the east and the northern-east of Hajjah governorate in Sharis district. Fig [1].

Geographically, it is located between latitudes (15 36 36 north, and the circle 13 20 21 north) and between longitudes (33 43 east, and longitude 45 43 east) [9].

The study area is about 9100 km² in size and characterized by a contrasts topographical location where the high mountains in the East represented by the mountain range of Maswar which is about (3240) meters height, and the highlands and the low-

lying plains in the West which are about (720) meters height. According to the climate of the study area, it is hot and rainy in summer, and cold and dry in winter [12].



Fig 1: Map showing location of the study area

2.2 Survey of Ethno-botanical Information

Frequent field surveys were carried out in the different areas of Sharis district, Yemen, during different seasons in 2015-2016. The ethno-botanical information was collected through several informal interviews and discussions with the herbal practitioners in and around the study area. Majority of the information was gathered from different resource persons who have a very long association with usage of plants. In addition to the local name, useful parts and medicinal uses was also recorded.

Specimens of all species were collected, photographed and identified with the help of available floras. The medicinal uses of plant species were cross checked from the available literature. Voucher specimens were prepared in the form of herbarium and deposited in the Botany Department, B.A.M.U University, India.

3. Results

In the present ethno-botanical survey, a total of 81 species belonging to 78 genera and 48 families were recorded. For each species local name, scientific name, habit, family, ailments to be treated, mode of treatment and part(s) used are provided (Table 2). Analysis of the data based on habits showed that leading medicinal plant species 50.61% belonged to herbs, 28.39% shrubs, 16.04% trees and 4.93% climbers (Table 3). Use of plant parts as medicine shows variation. Leaves (66.66%) are the leading part used in a majority of medicinal plants followed by 18.51% fruits, 40.74% roots, 20.98% whole plant, 7.40% bark, 8.64% stem, 4.9% latex (Fig-4).

Distribution of medicinal plant species in the families shows

variation (Table 1). Asteraceae is represented by 9 species, Solanaceae is represented by 7 species, Fabaceae is represented by 5 species, Euphorbiaceae is represented by 4 species, and each Papaveraceae, Pteridaceae, Malvaceae, Convolvulaceae, Apocynaceae, Amaranthaceae, Rubiaceae, Asclepiadaceae, Rutaceae and Moraceae are represented by two species. A single species in each was recorded by 34 families. With the help of these plants a wide range of common ailments like skin diseases, ulcer, rheumatism, respiratory diseases, indigestion, etc., are treated. Greater part of the preparations in the form of juice extracted from the freshly collected plant parts are taken orally.

4. Discussion

Sharis District is rich in plant diversity and local inhabitants are using medicinal plants traditionally for curing different ailments. Therefore, preservation of the indigenous knowledge of plants used in traditional health care is very important. People utilize different parts of the plant for medicinal purposes. For instance, the powder of leaves of *Adiantum incisum* is used to treat liver diseases and malaria treatment. Similarly the above Bark, Fruits of *Capparis spinosa* are used to treat allergy, anemia, cancer, diabetes, antifertility, anti-gastric, anti-hepatitis, inflammation, malaria, etc. The people of the area possessing good knowledge of herbal drugs but due to modernization, their knowledge of traditional uses of plants may be lost in due course. So it is important to study and document the uses of plants by different local communities. The substantial increase in the popularity of plant-based medicine for a variety of illnesses and symptoms is reported recently which reflects that medicinal plants had continued to be used extensively as a major source of drugs for the treatment of many ailments.

Among plants parts, leaves were used substantially by local inhabitants. This result is consistent with the work of Caraballo *et al.* [15] conducted in South-eastern Venezuelan Amazon and Pierre *et al.* [24] work conducted in Cameroon, where they proved that the leaves were most frequently used plant part by local inhabitants. This probably because leaves are more available and accessible plant part and contain good amount of secondary chemicals which has potential to cure the target ailments. Furthermore, more extensive studies are needed to record medicinal plants diversity in the study area, owing to its diverse habitats and topography. Even though most of the inhabitants have good accessibility to visit physicians or the clinics but they still use medicinal plants due to their efficacy and lesser side effects. This confirms the importance of these medicinal plants as renewable resources by local inhabitants in the study area. It was revealed that all of the informants of the study area use medicinal plants to treat at least some ailments and this shows dependency on the traditional primary healthcare practices among indigenous communities which is believed to be evolved over a long period of time based on necessities and experiences.

Table 1: Family wise number of genera and species present in the study area

| S. No. | Family | No. of Genera | No. of Species | S. No. | Family | No. of Genera | No. of Species |
|--------|-----------------|---------------|----------------|--------|------------------|---------------|----------------|
| 1. | Acanthaceae | 3 | 3 | 25. | Malvaceae | 2 | 2 |
| 2. | Agavaceae | 1 | 1 | 26. | Meliaceae | 1 | 1 |
| 3. | Alliaceae | 1 | 1 | 27. | Moraceae | 1 | 2 |
| 4. | Aloaceae | 1 | 1 | 28. | Musaceae | 1 | 1 |
| 5. | Amaranthaceae | 2 | 2 | 29. | Nyctaginaceae | 1 | 1 |
| 6. | Anacardiaceae | 1 | 1 | 30. | Oleaceae | 1 | 1 |
| 7. | Apocynaceae | 2 | 2 | 31. | Oxalidaceae | 1 | 1 |
| 8. | Asclepiadaceae | 2 | 2 | 32. | Papaveraceae | 2 | 2 |
| 9. | Aspleniaceae | 1 | 1 | 33. | Plantaginaceae | 1 | 1 |
| 10. | Asteraceae | 9 | 9 | 34. | Plumbaginaceae | 1 | 1 |
| 11. | Bignoniaceae | 1 | 1 | 35. | Polygalaceae | 1 | 1 |
| 12. | Cactaceae | 1 | 1 | 36. | Portulacaceae | 1 | 1 |
| 13. | Capparaceae | 1 | 1 | 37. | Pteridaceae | 2 | 2 |
| 14. | Caricaceae | 1 | 1 | 38. | Rhamnaceae | 1 | 1 |
| 15. | Chenopodiaceae | 1 | 1 | 39. | Rubiaceae | 2 | 2 |
| 16. | Convolvulaceae | 2 | 2 | 40. | Rutaceae | 2 | 2 |
| 17. | Cucurbitaceae | 1 | 1 | 41. | Scrophulariaceae | 1 | 1 |
| 18. | Cyperaceae | 1 | 1 | 42. | Solanaceae | 6 | 7 |
| 19. | Dryopteridaceae | 1 | 1 | 43. | Tamaricaceae | 1 | 1 |
| 20. | Euphorbiaceae | 3 | 4 | 44. | Tiliaceae | 1 | 1 |
| 21. | Fabaceae | 5 | 5 | 45. | Verbenaceae | 1 | 1 |
| 22. | Fumariaceae | 1 | 1 | 46. | Violaceae | 1 | 1 |
| 23. | Geraniaceae | 1 | 1 | 47. | Vitaceae | 1 | 1 |
| 24. | Lamiaceae | 1 | 1 | 48. | 1 | 1 | |

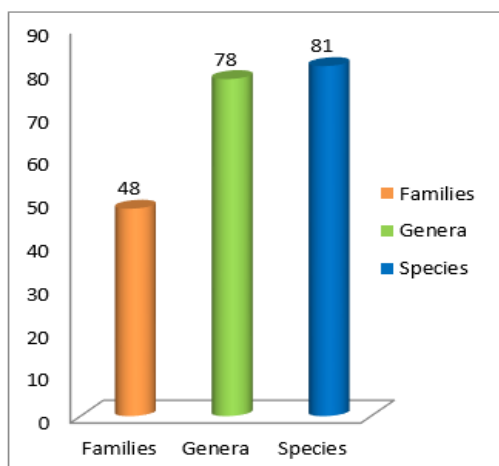


Fig 2: Proportion of Families, Genera and Species of Ethno-botanical important plants

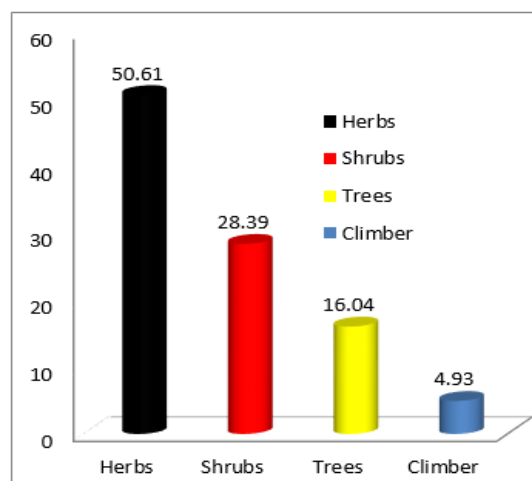


Fig 3: Growth forms (habits) of recorded medicinal plants species

Table 2: List of medicinal plants and their uses in different ailments by the local people at Sharis district, Yemen.

| Botanical name | Family | Local name | Habit | Part used | Ethno-botanical uses |
|---|-------------|---------------|-------|--------------------------------|--|
| <i>Blepharisciliaris</i> (L.) B.L. Burt. | Acanthaceae | Shok Al-qathy | Herb | Roots, Leaves, Seeds. | Decoction of roots, leaves, seeds. Astringents, appetizer, antitoxic, fever, wound, diuretic, cough, anti-asthmatic, parities, liver and spleen disorder, lung diseases, inflammation. |
| <i>Justiciaflava</i> (Vahl)Vahl. | Acanthaceae | Serab | Herb | Roots, Seeds | It is used in traditional medicine for the treatment of cough, paralysis, fever, epilepsy, convulsion and spasm, and skin infections and disorders. The roots are also used for diarrhea and dysentery. |
| <i>Peristrophepaniculata</i> (Forssk.)Brummitt. | Acanthaceae | | Herb | Whole plant | The whole plant, macerated in an infusion of rice, is taken orally in a large quantity as an antidote to snake poison. |
| <i>Agave sisalana</i> Perr. | Agavaceae. | Hezb,Saaf | Shrub | The Whole plant, Leaves, Roots | Leaf juice: Intestinal stimulator and uterine musculature, hypotensive, skin diseases, pulmonary tuberculosis, syphilis and liver diseases. Whole plant used to treat Indigestion, flatulence, constipation, dysentery, jaundice. Gum: Toothache. Lightly heated pounded roots are used for nephralgia. Its fibers |

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| | | | | | are used as bandage. It is also utilized to treat high blood pressure and various intestinal infections; the salted decoction of central bud is used for treatment of jaundice. The juice obtained from the leaves stimulates the intestinal and uterine musculature, lowers the blood pressure and produces abortion in pregnant animals. |
| <i>Allium cepa</i> L. | Alliaceae | Pasl | Herb | Whole plant | Bulbs are edible. Nose bleeding: Bulb extract is given to get relief from nose bleeding - 2 tablespoonful twice a day for 10 days. Boils: Bulb paste is applied on boils to cure. Insect repelling: Bulb pieces are used for repelling insects. Earache: Leaf juice is used in earache complaints. Plant is stimulant diuretic and used as expectorant. Paste of few bulb flakes mixing with mustard oil is warmed and massaged on neck and chest in the treatment of asthma. Bulbs crushed into paste then mixed with small amount mustard oil and used for massaging body ache, for massage to relief muscular pain. |
| <i>Aloe vera</i> (L.)Burm.f. | Aloaceae | Saber | Shrub | Whole plant, Leaves | Two/Three tablespoons leaf juice along with turmeric powder and salt is give once a day for five to six days in menstrual trouble of women. Mucilage of leaves is applied on abdomen to cure sunstroke. Leaf gel is consumed and applied on cracked feet and scalp psoriasis. Liver and spleen ailment: Fresh juice of leaves mixed with honey is given to get relief from liver and spleen disorders - 2 tablespoonful thrice a day for 15 days. Digestion: Leaf smeared with castor oil kept on abdomen for better digestion. Gonorrhea: Leaf juice with sugar candy is given for curing gonorrhea complaints. Rheumatic complaints: Root and leaf paste is applied locally for curing rheumatic complaints. |
| <i>Achyranthesaspera</i> L. | Amaranthaceae | Uokkes, Hamsched | Herb | Whole Plant, Leaves | One cup of whole plant juice along with two teaspoon honey is given twice a day for two days to cure fever. Root paste is applied on snake bite area. One glass of leaf juice is given to snake bite person. One tablespoon powder of entire plant with warm water is given early in the morning with empty stomach for three to four days to cure jaundice. Stomachache: Thick paste of leaves is prepared into small pills and used to get relief from stomach troubles -2 pills twice a day for one or two days. Toothache: Root paste is applied for curing toothache. Fever: Root extract is given to get relief from fever and colds - 2 tablespoonful twice a day for 3 days. |
| <i>Amaranthusspinous</i> L. | Amaranthaceae | Pahgi | Herb | Leaves, Roots, Seeds | Eczema: Roots burnt, made into paste with castor oil and applied locally on affected parts for curing eczema and other skin diseases. Eruptive fever: Plant extract is given to cure eruptive fever complaints - 2 tablespoonful twice a day for 3-4 days. Gonorrhea: Root extract is given to get relief from gonorrhea diseases -2 tablespoonful twice a day for 20 days. Root: Decoction is prescribed orally in Jaundice. Juice is given in diarrhea (about 10 ml four times daily till cure). It is also useful in feeling of burning sensation during urination. Juice extracted from roots is boiled for few minutes to make concentrated. Two teaspoonful of the concentrated juice is given twice a day for 15 days to cure piles. A smooth paste made from few plants is applied locally for few days to cure skin sores. 100 gm. of seeds are pounded and the extracted juice is mixed with honey in 3: 1 ratio and 10 ml of the mixture is taken orally twice a day for 7 days against cough and cold. Paste of roots is also applied locally on sores as an antiseptic. |
| <i>Mangiferaindica</i> L. | Anacardiaceae | Manga | Tree | Fruit, Seeds, Leaves | Jaundice: Bark powder of <i>Mangiferaindica</i> is added in boiling water & bath is taken also one cup of this mixture is given as drink and juice. Pharyngitis: Paste of seed cotyledons is applied locally. Scorpion bite: Latex of fruit petiole is applied on bitten place. Diarrhea of women: Powder of half cotyledon is taken with glass of water. Laryngitis: One leaf is boiled in water and a cup of water is taken orally. Solidification of milk: |

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| | | | | | 10 ml fresh unripe fruit juice is used. Juice is given in acidity and stomach pain (about 15 ml twice daily till cure). Decoction with honey is given in cough (about 20ml twice daily till cure. 75 gm. of dried seed are powdered. One teaspoonful of powder is soaked in a glass of water overnight The filtrate is warmed and given in an empty stomach in the morning against asthma. |
| <i>Catharanthus roseus</i> (L.) G. Don. | Apocynaceae | Vinca | Herb | Leaves, Roots, Latex | The plant is used as remedy for diabetes. Infusion of leaves is administered in gonorrhoea. Latex of the plant is used in poisonous insect bite. Leaves are pounded and 10 ml of the extracted juice is given twice a day for one month against cancer. Flowers are crushed and two teaspoonful of the extracted juice is given in an empty stomach for 3 days to bring down high blood pressure. 50 gm. of young leaves are wrapped in tender leaf of banana and burnt for 5 minutes. The boiled leaves are then crushed and the extracted juice is given once in an empty stomach for 5 days to control diabetes. |
| <i>Thevetia peruviana</i> (Pers.) Schum. | Apocynaceae | Deflah | Tree | Seeds, Leaves, Bark | Seeds are cardiac tonic and strong cardiac stimulant. Bark is cathartic, powerful febrifuge and emetic; useful in various kinds of intermittent fevers. Leaves also possess purgative and emetic properties. Seeds are abortifacient; used for suicidal and homicidal purposes. Seed oil is emetic and purgative. |
| <i>Calotropis procera</i> (Aiton)W.T.Aiton. | Asclepiadaceae | Oshar | Shrub | Whole plant, latex, Leaves, Roots, Stems | Young leaves are crushed and rubbed on pain area. Leaf juice is applied on alopecia patch against hair loss. The mixture of leaf paste and latex is applied on scorpion bite area. Poultice is applied on rheumatic pain. |
| <i>Gomphocarpus fruticosus</i> (L.)R.Br. | Asclepiadaceae | Henkh | Shrub | Leaves | Tumors, skin disease, scabies, and itching. |
| <i>Asplenium ceterach</i> L. | Aspleniaceae | Aefegan | Herb | Leaves | Decoction. For treating Kidney stones, diarrhea. Drunk one teacup twice a day. |
| <i>Artemisia abyssinica</i> Sch. Bip.exOliv. &Hiern. | Asteraceae | Sheh | Herb | Stems, Leaves, Fruits | It is used in Yemen for treating headache and as insect repellent. A decoction of fresh whole plant is traditionally used to treat diabetes mellitus. The plant has also been used in folk medicine as an anthelmintic, antispasmodic, ant rheumatic and antibacterial agent. Aerial parts. Anthelmintic, Appetizer, Indigestion. |
| <i>Centaurothamnus maximus</i> (Forssk.)Wagen. &Dittr. | Asteraceae | Baiath | Shrub | Leaves | Wounds. |
| <i>Chrysanthemum coronarium</i> L. | Asteraceae | | Herb | Bark, Leaves, Flowers. Roots | The bark is purgative and is used in syphilis. The leaves are applied topically to lessen inflammation. The flowers are a tolerable substitute for chamomile. The root chewed communicates the same tingling sensation to the tongue. |
| <i>Echinopsspinosissimus</i> Turra. | Asteraceae | Buri, Jirdab | Herb | Whole plant, Roots | It is mainly used to ease childbirth. A decoction of the roots is used for stomach pain, indigestion and lack of appetite as well as diabetes. The entire plant, in a powder or decoction, is used as a diuretic or depurative and to cure liver diseases. |
| <i>Kleiniapendula</i> Forssk. | Asteraceae | Daflog | Herb | Roots | Otitis. Swollen body part: Decoction of fresh succulent is bandaged on swollen part while warm. |
| <i>Parthenium hysterophorus</i> L. | Asteraceae | Feverfew | Herb | Roots | Decoction of roots is used in dysentery and helpful in skin disorders. Plant used as tonic, febrifuge, and analgesic. |
| <i>Psiadia punctulata</i> (DC.) Vatke. | Asteraceae | Futah | Herb | Leaves | It used in casts for broken bones. Leaf decoction finds a variety of ethno-botanical uses, including treatment of cold, fever, abdominal pains and for removal of ectoparasites from cattle. |
| <i>Sonchus oleraceus</i> L. | Asteraceae | Dalab | Herb | Leaves. | It is used as tonic, stomachic and preventive of cardiovascular diseases and against hepatitis. A decoction of a spoonful in a glass of water. It is drunk as tea until the symptoms disappear. |
| <i>Tagetes patula</i> L. | Asteraceae | Nirgis | Herb | Flowers, Leaves | The flower has pungent, bitter, acrid taste; useful in fevers and epileptic fits. The leaves are good remedy for piles, kidney troubles, muscular pain; their juice is used for earache The leaves are used as an application to boils and carbuncles; their juice is given in earache. |
| <i>Tecomastans</i> (L.)H.B.K. | Bignoniaceae | Tecoma | Shrub | Leaves, Stems. | Diabetes |

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|---|-----------------|------------|---------|------------------------------|--|
| <i>Opuntia ficus-indica</i> (L.)Mill. | Cactaceae | Tin Shawki | Shrub | Fruits, Flowers | Diarrhea, anti-diabetic. Decoction, juice. |
| <i>Capparis spinosa</i> L. | Capparaceae | Qapar | Shrub | Bark, Fruits | Aperient, tonic, diuretic, expectorant, anthelmintic, analgesic, antimicrobial, anti HIV, ant aging, allergy, anemia, cancer, diabetes, antifertility, anti-gastric, anti-hepatitis, inflammation, malaria, antimetabolic, antioxidant, antiseptic, antitumor, demulcent, emetic, fungicide, hepaticprotective, hyperglycemic, immune stimulant, insulin-sparing, laxative, lubricant, osteopenia, sedative, ulcer genic, aperient, depurative, tonic, vaginal thrush, appetizer. |
| <i>Carica papaya</i> L. | Caricaceae | Amb | Tree | Roots, Leaves, Fruits, Seeds | Condiments: Flowers buds are used as condiments, for laxative purposes. Rheumatism: Root bark powder with mustard oil applied locally in rheumatism and paralysis and tooth ache, twice massage for fifteen days. |
| <i>Salsola imbricate</i> Forssk. | Chenopodiaceae | Rotha | Shrub | Whole plant | The juice of the fresh plant is an Anthelmintic. |
| <i>Convolvulus arvensis</i> L. | Convolvulaceae | Elik | Climber | Stems, Leaves | Aerial parts of the herb used as laxative, wound healing, anti-spasmodic anti-hemorrhagic, anti-angiogenesis and for the treatment of parasites and jaundice. In addition it used as diuretic and in skin disorders such as anti-dandruff and in spider bites. Also used traditionally as decoction in cough and flu, to treat the painful joints, inflammation and swelling. |
| <i>Ipomoea obscura</i> (L.) Ker Gawl. | Convolvulaceae | Mloeh | Climber | Roots, Leaves, Seeds, fruits | It is effectively used against dysentery, is applied to open sores and pustules. A paste of leaves is applied on ulcers, hemorrhoids and swellings. Seeds and fruits are used as cleansing agents to improve difficult breathing, relieve pain and to improve vision. |
| <i>Cucurbitapepo</i> L. | Cucurbitaceae | Kosah | Climber | Fruits, Leaves, Seeds. | Cooling, astringent, laxative, toothache, throat infections, eyes sores, biliousness, diuretic, tonic, bronchitis, fever, good for the kidney and the brains. Taken ripe fruits, leaves paste, also applied fried seeds. |
| <i>Cyperus rotundus</i> L. | Cyperaceae | Saad | Herb | Roots, Whole plant | Sores and Wounds: Root paste is used externally for curing sores and wounds. Stomach ache: Powder of rhizome is mixed with water and given orally. A cupful of decoction made from fresh rhizome in goat's milk is given orally twice a day for 8-10 days to reduce body heat. 250 ml of warm water is added to the tubers powder and filtered. 20 ml of the filtrate is prescribed to take orally thrice a day for 10 days to cure malaria and jaundice. |
| <i>Dryopteris schimperiana</i> (A.Br.)C. Chr. | Dryopteridaceae | Maschot | Herb | Whole plant | The plant used to treat back pain and rheumatic pain by placing branch clip over the subject of pain. Use the leaves and twigs fern natural condition for the treatment of gout, rheumatism. |
| <i>Acalypha fruticosa</i> Forssk | Euphorbiaceae | Thefran | Shrub | Leaves, Roots | Boil the root in goat bone soup and drink the soup to treat liver problems, and stomach-ache caused by eating too much honey. A root decoction is drunk to treat convulsions, fever, colds and swellings of the scrotum. A root infusion is taken to treat whooping cough. The filtrate of the macerated leaves in water or milk is taken to treat constipation. The stem and root are chewed to treat toothache. A leaf infusion is taken to treat stomach problems and swellings of the body. Leaf maceration is used as eye-drops to treat eye infections. Leaf sap is swallowed or used as nose drops to treat cough and chest problems. |
| <i>Euphorbia granulata</i> Forssk. | Euphorbiaceae | Libanah | Herb | Latex | Externally for snake-bites. Decoction, liniment. Blood purifier, diuretic, purgative. |
| <i>Euphorbia hirta</i> L. | Euphorbiaceae | QatAlraie | Herb | Whole plant | Two cup of whole plant decoction along with 2 tablespoon honey is given twice a day for four to five days to treat asthma and bronchitis. Cough and Colds: Leaf extract is given to cure cough and colds - 2 tablespoonful twice a day for 5 days. Leaf juice is applied externally for curing joint pains. Asthma: Whole plant extract is given to get relief from asthma troubles - 2 tablespoonful twice a day for one month. |
| <i>Ricinus communis</i> L. | Euphorbiaceae | Khroa | Tree | Leaves, Roots | The mixture of root powder and leaf powder is applied on wound till it is cured. Two tablespoon root extract along with honey or sugar is given twice a day for three to four days to |

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| | | | | | <p>treat asthma and bronchitis and dysentery.</p> <p>Boils and Sores: Poultice of leaves applied locally on affected portion of body for curing boils and sores.</p> <p>Joint pain: Leaf juice is rubbed on joints for curing joint pain.</p> <p>Cracks of Feet: Seed oil is applied locally to get relief from cracks of feet. Rheumatism: Root extract is applied locally to get relief from rheumatic complaints.</p> |
| <i>Cassia senna</i> L. | Fabaceae | Ashrq. Sana | Shrub | Leaves, Seeds | Constipation; stomach cramps. powdered leaves and seeds mixed with thyme, lemon and sugar, boiled in water, the mixture filtered and filtrate taken orally once a week. Leaves and seeds is a purgative which stimulates the peristaltic movement of the large intestine, rheum, and a muscle stimulant. |
| <i>Crotalaria retusa</i> L. | Fabaceae | Glg | Herb | Fruits | The plant is used to treat uterine hemorrhages, dysentery, and inflamed wounds. |
| <i>Indigoferaspinosa</i> Forssk | Fabaceae | Qasar. Hil | Shrub | Leaves, Fruits | Toothache analgesic. |
| <i>Sennasophera</i> (L.)Roxb. | Fabaceae | Oshrog | Shrub | Roots, Leaves, Seeds | Leaves: Paste is applied locally as a medicine to cure ringworm and other skin diseases. Root: Paste is applied locally with fruits of <i>Piper nigrum</i> as a remedy for scorpion bite. |
| <i>Vignaunguiculata</i> (L.)Walp. | Fabaceae | Gedrah | Herb | Fruits, Seeds, Leaves, Roots | The young pods and seeds can be cooked and are a very good protein source. The seeds also have deworming and diuretic properties, and promote stomach health; when powdered and burned they alleviate insect bites. The leaves and seeds are made into compresses to treat blisters. The root also has medicinal properties and is used as a cure for snakebites and as medicine for epilepsy, chest pain, and dysmenorrhea. |
| <i>Fumariaparviflora</i> Lam. | Fumariaceae | Shahtaraj | Herb | Stems, Leaves | The aerial parts of plant used as diuretic, laxative, and blood purifier and used in liquid form for treatment of scabies, eczema, acne and other skin disorders. |
| <i>Erodiummalacoides</i> (L.)Willd. | Geraniaceae | | Herb | Whole plant | Dried powder is used in circulatory system. Pasted in skin problems, hair loss, and burns. |
| <i>Ocimumbasilicum</i> L. | Lamiaceae | Rihan or Habaq | Herb | Leaves, Seeds | Dysentery: Leaf juice is given to cure dysentery, 2 tablespoonful twice a day for 3 days. Excess of Heat: Seed is used for making juice and taken for reducing excessive heat from body. Ear ache: 2 drops of fresh leaf juice in dropped in ear. Jaundice: Seeds are crushed in water and half cup juice is taken four times for two weeks. Leaves pounded into paste and applied to forehead relieves head ache. Leaves: Paste is applied locally on ringworm, scorpion sting. Paste with honey is given in cough, colds and bronchial congestion (about 5 gm. In 10 ml of honey twice daily for a week). Decoction is used to wash ulcers. It is also given in emesis (about 15 ml twice daily for three days). |
| <i>Punicagranatum</i> L. | Lythraceae | Romman | Tree | Seeds, Fruits | 150 ml of fruit extract is given twice a day for five days to cure cough. Seeds from ripe fruits are edible and eaten raw by the inhabitants as a source of tonic to relieve general weakness and fatigue. Juice is given in indigestion (about 20 ml twice daily for 10 days). One cup of juice is taken twice daily for one- month helps to purify blood. One tablespoon of rind powder is mixed with a cup of warm water once in daily for two days to check vomiting. One tablespoon rind powder is mixed with a glass of water; One glass twice daily for fifteen days to help to promote flow of urine. |
| <i>Abutilon pannosum</i> (Forssk.)Schlechl. | Malvaceae | Munnaqa | Shrub | Seed, Bark, Roots | The seed are used as the treatment of cough. The bark and the root were used as diuretic, pulmonary sedative and in fever. Its extract is also used in relieving thirst, in treating bronchitis, diarrhea, gonorrhoea and inflammation of the bladder and in reducing fever. In addition, it is used in cleaning wound and ulcer, treating vaginal infection, diabetics, hemorrhoids and can also use as an anemia. |
| <i>Hibiscus rosa-sinensis</i> L. | Malvaceae | China Rose | Shrub | Flowers, Leaves, Roots | Decoction of flowers and leaves used in treatment flu, cough, stomach pain, eye problems. Flowers used for lactation, abortion, antifertility, contraceptive, diuretic, menorrhagia, bronchitis, demulcent, |

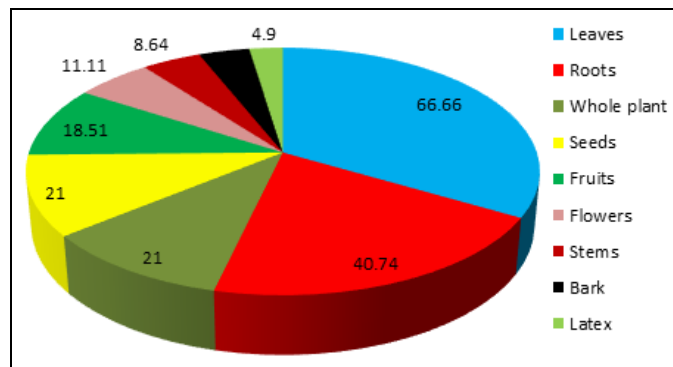
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| | | | | | cough. Juice of leaves and flowers used in treatment menstruation, abortion. Hot water extract of roots and flowers used to treat fever, menstruation. Infusion of Barks and leaves used in treatment dysentery cough, contraceptive, and amenorrhea. |
| <i>Trichilia emetic</i> Vahl. | Meliaceae | Ruqaa | Tree | Roots, Leaves | The root bark decoction is better for emetic, purgative, fever, epilepsy, leprosy and makes women fecund. Also it is used against poisoning, hepatitis, ulcer, dysmenorrhea, asthma, cirrhosis and internal worms. Its fruits are used as diuretic. Decoction of fresh leaf twigs is drunk in colic, in case of convulsions and fever. A decoction of the roots is used against jaundice and is better against intestinal worms. The leaf decoction is used against skin diseases, malaria, scabies and insomnia; and for its stimulatory properties in bronchial secretions. The plant is used as general tonic and for bronchial inflammation. Leaf and roots decoctions are used for bathing against insomnia. |
| <i>Ficus carica</i> L. | Moraceae | Balas. Teen | Shrub | Leaves, Fruits | Fruits are eaten fresh or dried and being laxative used in constipation. Fruit boiled in water, mixture taken as a drink to relieve cough; leaves crushed and applied on face to lighten freckles. |
| <i>Ficus sycomorus</i> L. | Moraceae | Ebra, Sagm | Tree | Root bark, Stem bark | Root bark used Common cold. Root bark is crushed, squeezed with water and one cup is taken. Stem bark. Snake and scorpion sting. Stem bark is chewed and sucking juices (sucking). Blotting. Root is crushed, soaked in water and one cup is taken (maceration). Diarrhea. |
| <i>Musa paradisiaca</i> L. | Musaceae | Mawz | Herb | Leaves, Fruits | Diarrhea: Mix 3 fruits of Banana, one tablespoonful honey in the milk, administered internally twice a day for two days. Stomach disorders: Fruit solution is given to get relief from stomach complaints. Unripe fruits are cut into pieces and boiled in 250 ml of water for 20 minutes. The decoction is given to get relief from anemia in a dose of 20 ml twice a day for 2 weeks. Flowers are boiled in 200 ml of water for few minutes and 20 ml of the decoction is given twice a day for 5 days in asthma. Few unripe fruits are boiled and one fruit is given in one dose twice daily for 2 days in dysentery and diarrhea. |
| <i>Mirabilis jalapa</i> L. | Nyctaginaceae | Warad Al Layl | Herb | Roots | Swelling: Leaf paste is applied locally. Piles: Root powder is mixed with ghee of cow and taken orally for 7 days. Wound: Juice of fresh leaf is applied locally. |
| <i>Jasminum grandiflorum</i> L. | Oleaceae | Jasmine, Yasminrazqy | Shrub | Roots, Leaves, Flowers | Jasmine for liver complaints, dysentery, various types of pain including painful menstruation, and skin diseases such as leprosy. Jasmine oil applied externally is used to soften and smooth the skin, and as an aphrodisiac. Leaves are chewed to treat stomatitis, toothache, ulcer in the mouth and leaf juice or oil obtained from it is dropped in to the ear. |
| <i>Oxalis corniculata</i> L. | Oxalidaceae | Hmeth | Herb | Whole plant, Leaves | Cold: Leaf juice mixed with breast milk in equal proportion and given to infants for curing cold and cough. Decoction is given in dysentery and diarrhea (20 ml, twice or thrice daily until cured). |
| <i>Argemone Mexicana</i> L. | Papaveraceae | Barod | Herb | Roots, Latex, Leaves, Seeds | Leaf juice along with salt is applied on infected part of the body to cure scabies. Scorpion sting: Root paste is applied to painful area. Jaundice: Piece of root is given with Piper leaf once in a day for seven days. A few drops of oil from the seed with sugar cures stomach pain. |
| <i>Papaver somniferum</i> L. | Papaveraceae | Khshkhash | Herb | Seeds | Analgesic, Narcotics. Boil the water and add the extract of opium to it and take 1–2 spoons orally of this syrup. Seeds are used for cough, chest troubles, diarrhea and dysentery. |
| <i>Plantago lanceolata</i> L. | Plantaginaceae | Zabad | Herb | Leaves | Leaves put directly on the skin to treat wounds, and leaves soaked for the treatment of chest diseases are used, it is also light is considered an appetite suppressant and filter blood and diuretic inhibit tooth and ear pain, also used the plant to relieve hardening of the arteries, high cholesterol, and used the cards in pulmonary tuberculosis, whooping cough and treatment cure constipation. |

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| <i>Plumbagozeylanica</i> L. | Plumbaginaceae | Ward | Shrub | Leaves, Roots | Skin diseases: Root paste is applied to the skin for three times a day for eight days. Wound healing: Roots boiled in mustard oil till its color changes, after cooling applied to get relief in cuts and wound healing. Rheumatism: Root paste massaged locally to cure rheumatic complaints. Opening abscesses: Root paste applied for opening abscesses. Dyspepsia: Root extract is given to cure dyspepsia disease - two teaspoonful twice a day till recovery. |
| <i>Rumexnervosus</i> Vahl. | Polygalaceae | Athrub. Bathran. | Herb | Leaves, Stems | Appetizing, diuretic and astringent. Use the leaves and stems of fresh vegetables. A taste sour and unpalatable, guides juice of dental pain and stops the nausea and appetite, and plant anti-scorpion bites, and described seeds roasted for the treatment of dysentery, also used to treat the effect of snake bite. |
| <i>Portulacaoleracea</i> L. | Portulacaceae | Rijil | Herb | Stems, Leaves | Fever: Leaf juice is given for reducing temperature from body - 2 tablespoonful twice a day for one week. Urinary complaints: Whole plant extract is given in case of urinary and constipation complaints - 2 tablespoonful twice a day for one week. Paste made from a handful of fresh leaves oil is heated for a while and massaged on forehead thoroughly once a day at night before bedtime upto one week for relieving headache. |
| <i>Adiantumincisum</i> Forsskal. l. | Pteridaceae | Shear Al- Jen, Shar Al- Klab. | Herb | The Whole plant, Leaves, Roots | The Whole plant and Juice of fronds are used to treat diabetes. Leaves powder used in liver diseases. Leaves are external remedy for skin disease. Also are used in malaria treatment and as a cure for cough and bronchial affection. Roots are used in bone fracture. |
| <i>Pterisvittata</i> L. | Pteridaceae | Meschat. Gisbirih. | Herb | Whole plant | The whole plant parts are ground into paste and applied over the affected places for wound healing. The paste is mixed with pepper and taken orally to get relief from cold, cough and fever. |
| <i>Ziziphusspina-christi</i> (L.) Willd. | Rhamnaceae | Sedr | Tree | Leaves, Seeds | It is used for treating bruises; chest pain; mouth and gum problems; dandruff, leaves boiled in water, the mixture applied to soothe skin; crushed seed kernels eaten daily for chest pains; chewing fresh leaves to relieve pain; leaves boiled or soaked in water, used as hair shampoo the bark contains tannins. |
| <i>Breonadiasalicina</i> (Vahl) Hepper&J.R.I.Wood. | Rubiaceae | Tharah | Tree | Roots | Root used as a cure for vomiting. Root is crushed, squeezed with water and one cup is taken (crushing and squeezing). Where it is widely used to treat cancer, gastrointestinal illness, fevers, headaches, arthritis, diabetes, inflamed wounds, ulcers, and bacterial and fungal infections. It also has anti-diarrheal properties. |
| <i>Coffeaarabica</i> L. | Rubiaceae | Arabica coffee, Bon | Tree | Seeds | Coffee is as a folk remedy for asthma, atropine-poisoning, fever, flu, headache, jaundice, malaria, migraine, narcosis, nephritis, opium-poisoning, sores, and vertigo. Also, caffeine is a widespread additive in over-the counter diet pills, and stimulants. |
| <i>Citrus aurantifolia</i> (Christum) Swingle. | Rutaceae | Lim Hamidh | Tree | Fruits | Diarrhea: Fruit juice mixed with salt and sugar is given to cure diarrhea one glass every half an hour till recovery. Canned ripe fruits in common salt are used in flatulence, dyspepsia. Fruit juice is applied on the head and kept for 1 hour. Then washed hair thoroughly. It helps in removing dandruff. Fruit juice is rubbed on itching skin before bath. After 2 hours washed off thoroughly. It relieves the itching sense. |
| <i>Citrus sinensis</i> (L.) Osbeck. | Rutaceae | Portgal | Tree | Roots, Leaves, Fruits | Root paste mixed with milk taken orally on intestinal worms. The fruit juice taken orally to reduce general body weakness. Two mg stem bark ash mixed with honey taken orally to stop vomiting. Leaf decoction is taken orally for curing malaria. The fruit juice is added with sugar and palm oil of honey to cough |
| <i>Verbascumbottae</i> (Defl.) Huber-Mor. | Scrophulariaceae | | Herb | Leaves, Flowers | Cough, skin disease, and rheumatism |
| <i>Daturainnoxia</i> Mill. | Solanaceae | Panj | Herb | Whole plant, Roots | Fresh leaf and fruit paste is warm and applied externally or massage over joint pain area till it is cured. Asthma: Leaf |

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| | | | | Leaves, Seeds | extract mixed with juice of <i>Solanumnigrum</i> is given to cure asthma and old cough - 3 tablespoonful twice a day for 30 days. Boils: Leaves crushed made into a paste, and applied on boils. Some dried seeds are burnt in fire and the smoke is inhaled for relieving hypertension. |
| <i>Lyciumshawii</i> Roem&Schult. | Solanaceae | Aosaj | Shrub | Fruits, Roots | Using the plant as a facilitator and a diuretic, used boiled leaves popularly against kidney stones. Soaked papers also used in the treatment of mouth ulcers and anal itching and ear pain, and treatment of irregular menstruation and disease, dysentery, anemia, colic and cough. |
| <i>Nicotianaglauca</i> R.C. Graham, Edinb. | Solanaceae | Hamomy | Shrub | Leaves. | Against asthma and migraine. It is used as cigarette during the crisis of asthma or migraine. As poisonous. |
| <i>Physalis minima</i> L. | Solanaceae | | Herb | Leaves, Fruits, Seeds | Tonic and Purgative: Leaf and fruit extract is given as tonic for improving body health - 2 tablespoonful, twice a day for one month. Menstrual disorders: Dry seed powder is given with milk once in a day. Young shoots are pounded to prepare a paste and the extracted juice is boiled mixing with two times of water for few minutes. 15 ml of the mixture is given one a day against gastric trouble till cure. |
| <i>Solanumincanum</i> L. | Solanaceae | Nuqum, Arsm | Shrub | Leaves, Roots | It is used to treat bruised fingers; dyspepsia; earache; hemorrhoids, all parts crushed together in water to make a paste, applied as poultice on bruise; berries, leaves and roots boiled together in water, taken as a drink for dyspepsia; berries boiled in oil, oil used as ear drops; dried berries burnt and smoke placed under patient for hemorrhoids |
| <i>Solanummelongena</i> L. | Solanaceae | Badhinjan | Herb | Fruits | It is used as juice against high level of cholesterol. Appetite and lessens inflammation. |
| <i>Withaniasomnifera</i> (L.) Dun. | Solanaceae | Ebb | Shrub | Roots, Leaves | Swelling of Hands and Feet: Leaf juice is applied locally on body parts to get relief from swellings. Eye complaints: Leaf paste is applied on upper eye lids for curing pain of eyes. Asthma: Root juice is given to get relief from asthmatic complaints - two tablespoonful twice a day for 15 days. Gynecological disorders; Root extract given to cure gynecological disorders - 2 tablespoonful twice a day for 5 days. |
| <i>Tamarixaphylla</i> (L.) Karst. | Tamaricaceae | Athl | Tree | Roots, Leaves, Bark | Decoction of the roots: Is effective for tuberculosis, leprosy, smallpox and all contagious diseases. Decoction of the leaves and young branches: Used for a swollen spleen. When ginger is added to the same decoction it can be used for problems of the uterus. Bark, gall and leaves: The bark and gall are astringent, aphrodisiac and tonic, and are used for the treatment of hepatitis, eczema and other skin diseases, syphilis and scaly skin conditions. Fumigation of the leaves has germicidal effect; also beneficial in cold and flu. Decoction of the leaves is useful in tetanus. Bark is used as a poultice on wounds. |
| <i>Corchorustrilocularis</i> L. | Tiliaceae | Mlokheah | Herb | Leaves | Diarrhea: Decoction of root and unripe fruit is given to get relief in diarrhea - one teaspoonful thrice a day for four days. Fever: Seeds are used in fever. Vegetables: Leaves are used as vegetables. |
| <i>Lantana camara</i> L. | Verbenaceae | Hshaf, AomKelthom | Shrub | Whole plant, Leaves | Leaf juice is applied on wounds and dry boils twice a day for ten to fifteen days. Three to four leaves are crushed and kept under tooth pain area. Kidney stone: Crushed 20-25 fresh leaves in the 250-ml of water, administered in empty stomach for one month. Fever: Crushed fresh leaves into 100-150 ml of water, administered thrice a day for four days. Rheumatic Pain: Leaf paste applied locally to get relief from rheumatic complaints. |
| <i>Hybanthusenneaspermus</i> (L.) F. Mueller, Fragm. | Violaceae | | Herb | Leaves, Flowers | The plant possesses anti-convulsion, and also used to treat diarrhea, dysuria, urinary tract infections, male sterility and diabetes |
| <i>Cissusrotundifolia</i> (Forssk.)Vahl. | Vitaceae | Halas | Climber | Leaves | Malaria, liver disease, and otitis. Boiled leaves mixed with garlic, Eaten during meals. |

Table 3: Analysis of the data based on habit showed that leading medicinal plants species.

| Habit | No. of species | Percentage | Total number of species |
|----------|----------------|------------|-------------------------|
| Herbs | 41 | 50.61% | 81 |
| Shrubs | 23 | 28.39% | 81 |
| Trees | 13 | 16.01% | 81 |
| Climbers | 4 | 4.93% | 81 |

**Fig 4:** The part of medicinal plants used by the local inhabitants of the study area

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