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ETHONOBOTANICAL PROPERTIES AND USES OF MEDICINAL PLANTS OF MORGAH BIODIVERSITY PARK, RAWALPINDI

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Abstract

The present study was conducted in Morgah Biodiversity Park, Rawalpindi during 2006 to enlist the economic importance of medicinal plants with their medicinal properties and uses. The inhabitants of the area have to use the medicinal plants for various purposes and have for a long time been dependent on surrounding plant sources for their food, shelter, fodders, health care and other cultural purposes. However, changes in their life style seem to be responsible for the decline of practice in the local use of herbs for medicinal uses. It is therefore important to record the ethno botanical uses of these plants before the information is lost. The ethonobotanocal data were collected through questioners by interviewing local communities, local Tabib and Hakims. In total 40 species belonging to 39 genera and 32 families were recorded which were used medically by inhabitants of the area.

Introduction

The history of herbal medicine dates back to early man. Long experience of trial and error brought home the importance of useful against the harmful plants. Perhaps as early as Neanderthal man, plants were believed to have healing power. The earliest uses were found in Babylonian circa 1770 BC in the code of Hammurabi and in ancient Egypt circa 1550 BC. In fact ancient Egyptians believed medicinal plants to have utility even in the after life of their pharaohs. The earliest recorded history of civilization from ancient culture of Africa, China, Egypt and Indus valley revealed evidences in support of the use of herbal medicine by dweller of those regions (Baqar, 2001).

Medicinal plants fall in two broad categories. Those plants which are only used by local physicians in various crude formulations to provide some relief to the local population in developing countries. Secondly, those plants which are in demand by pharmaceutical companies for their active ingredients (Baqar, 2001). According to the World Health Organization (WHO) "a medicinal plant is plant which, in one or more of its organs, contains substance that can be used for therapeutic purposes, or which are precursors for chemo-pharmaceutical semi-synthesis"(Brussels, 2001). Pakistan has a varied climate and is rich in medicinal herb, scattered over a large area. There are about 600 plant species identified as having medicinal values (Shinwari & Khan, 1996).

In Pakistan medicinal plants are primarily used by Tibbia Dawakhana (herbal medical centers of indigenous physicians known as hakims). In Ayurvedic system of herbal treatment pharmaceutical industries are being commercially exploited for the extraction of various ingredients (Mahmood *et al*., 2003).

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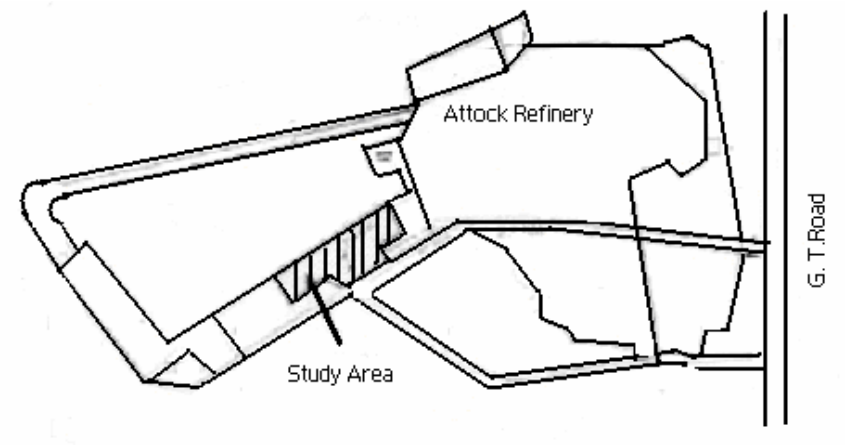

Fig. 1. Map of Morgah biodiversity Park showing study area.

Traditional unani medicine is a part of our culture and Pakistan is one of those countries where traditional unani medicine is popularly practiced among the large segment of its population. The physicians who practice this system are known as "Hakims". It originated in Greece, founded by old ancient Greek philosophers and was used /documented by Muslims during the period of Islamic civilization. It was brought to the Indo-Pak subcontinent by Muslim scholars and practiced here for centuries. It also benefited from the ayurvedic system of medicines. Traditional unani medicine heavily depends on medicinal plants (Ahmad *et al*., 2003).

In Pakistan medicinal plants face many threats mainly due to the unawareness of local communities and authorities of the area where medicinal plants grow. Local people are unaware of any scientific work done for the conservation of medicinal plants due to the language problem and remain ignorant of any threat faced by medicinal plants and any suggestion given by authorities and experts about medicinal plants. Other threats to medicinal plants are over cutting for fuel wood consumption, careless up rooting of medicinal plants and heavy grazing (Qureshi & Ahmad, 1996; Malik & Husain, 2007).

Keeping in mind the importance of the Medicinal plants, the present study was conducted in Biodiversity Park at Morgah, Rawalpindi. The park was established to protect the biodiversity of Pothowar Region. It is situated three Km away from the center of Rawalpindi (Fig. 1). The total area of the park is made up of 28 acres. The latitude is 33. 40 N and longitude is 44.30 E. The project emanated from the UNESCAP's (United Nation Economic and Social Commission for Asia and the Pacific) with the follow-up to the World Summit on Sustainable Development (WSSD). The UNESCAP sought regional implementation of the water, energy, health and biodiversity (WEHAB) agenda through public-private partnership. In Pothowar region 480 plant species are present and 260 plant species including 53 medicinal plants are cultivated in Morgah Biodiversity Park (Ahmad, 2005)

The park is based on the concept of sustainable development, not only to conserve the rich biodiversity of the Pothwar region but also provide basic services to the poor and will help in the poverty alleviation of the area. The park was opened for public on 14 August, 2005 (Ahmad, 2005).

Materials and Methods

The ethnobotanical uses of the plants were collected by field survey, based on the interviews from the local communities. An intensive ethnobotanical survey of Morgah Biodiversity Park, Rawalpindi was undertaken during 2006. Information on medicinal plants used for different purposes were recorded. Field interviews were conducted with local inhabitants and local herbalists.

Personal interviews were carried out through questioners with locals in their houses, male meeting places and in schools. Plant specimens were collected, pressed, dried and identified. The voucher specimens are deposited in Fatima Jinnah University herbarium. The indigenous knowledge about the use of medicinal plants were arranged in alphabetical order of botanical names followed by family, english name, vernacular name, part used and indigenous uses.

Results

During research work, the indigenous knowledge of 40 plant species of 39 genera belonging to 32 families were collected and related to medicinal uses of plants. Ethnobotanical data of the following trees, shrubs and herbs of the economic importance in the study area are given.

Trees: Trees include 8 species belonging to 7 families.

1. *Acacia nilotica* (L.) Willd. ex Del.
Family: Mimosaceae
Vernacular name: Kikar
English name: Babul
Voucher number and collection date: 200. 3 March, 2006.
Parts used: Leaves, bark, pods and gum

Economic uses: Astringent, antiseptic, demulcent, purgative and tonic. The decoction of gum is used for curing diarrhoea, dysentery and constipation. Bark of tree is used in eczema and leucorrhoea. Leaves are useful in treating the epiphora. Used in muswak, timber, fuel wood, fodder. Gum is useful adjunct to medicines used for pulmonary and catarrhal affections. Used in tanning industry.

2. *Cassia fistula* L.
Family: Caesalpiniaceae
Vernacular name: Amaltas
English name: Golden shower
Voucher number and collection date: 201. 3 March, 2006
Parts used: Dried leaves, pods, flowers, root, pulp and seeds

Economic uses: Ornamental tree. Laxative, astringent and tonic. Pulp is used for revealing the heat of pain. Confection of pulp is given in case of diabetes. Used against constipation, common cold, fever. Bark is used against ringworm. Used as fuel, timber and fodder. Pulp is useful for reveling thoracic obstructions, heat of blood.

3. *Cordia dichotoma* Forst.f.
Family: Ehretiaceae
Vernacular name: Lasora
English name: Indian Cheery
Voucher number and collection date: 202. 3 March, 2006
Parts used: Whole plant and fruit

Economic uses: Ripe fruit eaten raw; green fruit eaten as vegetable, used in curry and pickled. Demulcent, expectorant, tonic and refrigerant. It is used to reduce the irritation of the urinary passages, alleviation of thirst and dry cough.

4. *Datura innoxia* Mill
Family: Solanaceae
Vernacular name: Datura
English name: Thorn apple
Voucher number and collection date: 203. 3 March, 2006
Parts used: Dried leaves, seeds and fruit

Economic uses: Antispasmodic, sedative and narcotic. Smoke of the plant is inhaled to cure asthma. Fruits are used in malaria. Fruit is used to reveal cardiac pains and distress. Leaves are used in earache. The juice of the fruit is applied to the scalp for curing dandruff and falling hairs. The leaves are applied to boils, sores and fish bites. Seeds are useful for patchy baldness.

5. *Ficus carica* Forssk.
Family: Moraceae
Vernacular name: Anjir
English name: Fig
Voucher number and collection date: 204. 3 March, 2006
Parts used: Wood, latex, flower, leaves, seeds and dried fruit

Economic uses: Demulcent, laxative and antiseptic. Fruits are used against constipation and flatulence. Used as fuel, fodder. Juice of fruit and latex are effective against warts, piles and chronic ulcers. The unripe fruit and young growth are cocked and eaten as a vegetable. Latex soothes the bee sitting by simply rubbing on the skin.

6. *Melia azedarach* L.
Family: Meliaceae
Vernacular name: Drek
English name: Chinaberry tree
Voucher number and collection date: 205. 3 March, 2006
Parts used: Leaves

Economic uses: Antiperiodic and astringent, anthelmintic, tonic and diuretic. Leaves are used in anemia, eczema and measles jaundice and bloody piles. Leaves are used in for wounds and pimples. Used as timber, fodder and shade tree.

7. *Morus alba* L.
Family: Moraceae
Vernacular name: Shatoot
English name: Mulberry
Voucher number and collection date: 206. 3 March, 2006
Parts used: Leaves, fruit, branches, roots

Economic uses: Fruits are eaten both fresh and dry. They are laxative, purgative, antiseptic, anti diabetic and are used to promote sweating, for lowering blood pressure. The leaves are used in the treatment of colds, influenza, eye infection and nose bleeds. Fruit is used in weakness, dizziness, jaundice, hay fever and anemia. Bark is used for lowering blood pressure. Used as timber.

8. *Phyllanthus emblica* L.
Family: Euphorbiaceae
Vernacular name: Amla
English name: Indian Gooseberry
Voucher number and collection date: 207. 3 March, 2006
Parts used: Fresh and dried fruits, seeds, flowers, leaves and bark

Economic use: Carminative, stomachic, diuretic, laxative and astringent. It has cooling, refreshing effect. The herb is used in asthma, bronchitis, scurvy, cardiac and stomach debility, tuberculosis, diabetes. Dried fruits are used in dysentery, diarrhea, gonorrhea, rheumatism and jaundice. It is used in hair tonic, pickles and used as vegetable.

Herbs: Herbs include 23 species belonging to 16 families.

9. *Adiantum capillus-veneris*. L.
Family: Adiantaceae
Vernacular name: Persoshona
English name: Hair Fern
Voucher number and collection date: 208. 3 March, 2006
Parts used: Leaves

Economic uses: Ornamental, antidandruff, diuretic, expectorant, refrigerant and tonic. It is used for curing scorpion bites. A tea or syrup is used in the treatment of coughs, bronchitis and pneumonia. The leaves are used as a hair tonic.

10. *Aloe barbadensis* Mill.
Family: Liliaceae
Vernacular name: Kunwar Ghandal / Ghee Kanwar
English name: Barbados Aloe
Voucher number and collection date: 209. 3 March, 2006
Parts used: Leaves

Economic uses: Stimulant, laxative, tonic and expectorant. The pulp of herb is useful in Jaundice, rheumatism. The juices of the leaves are used in colds and cough. The leaves

are used in wound, eruption and joint pain, leucorrhoea and anti-inflammatory. It is used as blood purifier. The leaf extracts are used in skin-care cosmetic products. Leaves are used for lowering blood pressure.

11. *Carthamus tinctorius* L.
Family: Asteraceae
Vernacular name: Tukhmigartum
English name: Safflower
Voucher number and collection date: 210. 3 March, 2006
Parts used: Roots, flowers and oil

Economic uses: It is used as food additives, ornamental plant, used as food (oil/fat), for fodder, sedative, laxative and stimulant. The flowers are used in measles, fevers, and eruptive skin problems. Tea is used in colds and cough. Oil is used to lowering cholesterol level.

12. *Centella asiatica (*L.) Vrban.
Family: Umbelliferae/ Apiaceae
Vernacular name: Barmi/ Brahami booti / Jal brahmi
English name: Indian pennywort
Voucher number and collection date: 211. 3 March, 2006
Parts used: Herb

Economic use: It is used as tonic, diuretic, alterative and laxative. It is used in treatment of leprosy. It is a brain tonic and stimulates hair growth. It is used in skin diseases, treating wounds, burns and ulcer.

13. *Coriandrum sativum* L.
Family: Umbelliferae / Apiaceae
Vernacular name: Dhania
English name: Coriander
Voucher number and collection date: 212. 3 March, 2006
Parts used: Leaves, seeds, stem and coriander juice

Economic use: Refrigerant, carminative, stomachic, aromatic, tonic, diuretic, antispasmodic and antiseptic. Juice of the herb is used in indigestion, hepatitis, typhoid fever, dysentery, small pox, nausea, flatulence, vomiting and bleeding piles. Seeds are used as poultice for ulcer. Used as eye wash. Used as flavoring agent in sauces, in cooking, curries, soaps, as pickling spices. Useful in pimples, blackheads and dry skin.

14. *Cuscuta reflexa* Roxb.
Family: Cuscutaceae
Vernacular name: Akasbel, Amer Beil
English name: Doddar
Voucher number and collection date: 213. 3 March, 2006
Parts used: Whole herb

Economic use: It is used for washing sores. Carminative, alternative, purgative, anthelmintic and anti-lice. It is useful in diseases of liver and spleen, blood impurities, constipation, fevers and flatulence.

15. *Eclipta prostrate* (L.) L.
Family: Compositae
Vernacular name: Tik
English name: False Daisy
Voucher number and collection date: 214 3 March, 2006
Parts used: Herb

Economic use: Tonic, antiseptic, astringent and purgative. It is used to promote hair growth. It is used in anemia, diphtheria, eczema and jaundice.

16. *Foeniculum vulgare* Mill.
Family: Umbelliferae
Vernacular name: Saunf
English name: Fennel
Voucher number and collection date: 215. 3 March, 2006
Parts Used: Leaves, seeds, fruit, leafstalk and essential oil

Economic use: Carminative, diuretic, aromatic, gastric stimulant and stomachic. It is used in flatulence, strengthen the eye sight. Used in indigestion, abdominal pain. Dried fruits are used in culinary preparations for flavoring bread, salad dressings, breads, pastries, teas, soaps, creams, perfumes. It is used in children's 'Gripe Water'. Its roots are used in 'Sharbat-e-Bazoori'. It is an aromatic gastric stimulant, clears the organs of obstructions particularly the digestive tract, liver, spleen and kidneys, colic, hernia and indigestion.

17. *Fumaria indica* (Hausskn.) Pugsley
Family: Fumariaceae
Vernacular name: Pitpapra
English name: Fine-leaved Fumitory
Voucher number and collection date: 216. 3 March, 2006
Parts used: leaves and stem

Economic use: Diuretic, diaphoretic, laxative, tonic, stomachic, sedative, blood purifier and antibiotic. Decoction and infusion of the herb is used in leprosy, constipation, jaundiance, chronic fevers and dyspepsia.

18. *Linum usitatissimum* L.
Family: Liliaceae
Vernacular name: Alsi
English name: Linseed
Voucher number and collection date: 217. 3 March, 2006
Parts used: Seeds

Economic uses: Seeds are used in colds, cough, tuberculosis and chronic constipation. Hot poultices of seeds are used in boils, burns and eczema. Seeds are used in gonorrhoea. Poultice of the seeds are used in pneumonia and bronchitis.

19. *Martricaria chamomilla* L.
Family: Asteraceae
Vernacular name: Babuna
English name: Chamomile
Voucher number and collection date: 218. 3 March, 2006
Parts used: Whole herb and flower

Economic use: Antiinflamentry, carminative, antiseptic, antispasmodic, stimulant, tonic and sedative. Herb is used in colic, dyspepsia, rheumatism, burns, eczema and headaches. Flowers are used in earache. Infusion of the flowers is useful in insomnia.

20. *Mentha longifolia* (L.) Huds.
Family: Lamiaceae
Vernacular name: Jangli podina
English name: Horse Mint
Voucher number and collection date: 219. 3 March, 2006
Parts used: whole herb

Economic use: Stomachic, carminative, stimulant, antiseptic and refrigerant. Herb is used in diarrhoea and dysentery, asthma, cures pimples, prevent dryness of hair. It is used as flavoring agent. Mint oil is used in chewing gum, tooth paste, mouth wash. The infusion of the leaf is taken as a cooling medicine. Herb is used in fever, sore throat and dyspepsia.

21. *Ocimum basilicum* L.
Family: Lamiaceae
Vernacular name: Niazbo
English name: Basil
Voucher number and collection date: 220. 3 March, 2006
Parts used: Leaves and seeds

Economic use: Antidepressant, antiseptic, stimulant, diaphoretic, carminative, diuretic, demulcent, aromatic, expectorant and tonic. Seeds are used in heat in summer and gonorrhoea. Decoction of leaves is given in low blood pressure and bronchitis. Decoction of root is used in malarial fever. Decoction of leaves is useful in cough, cold, fever, diarrhoea and tonic for stomach. Seeds are a household remedy for heat when used in syrups in summer season. Seeds are used in gonorrhoea and ring worms. Leaves are useful in ulcers and infection in mouth.

22. *Oxalis corniculata* L.
Family: Oxalidaceae
Vernacular name: Khatti Booti/ Khatmith
English name: Indian Sorrel

Voucher number and collection date: 221. 3 March, 2006
Parts used: Whole herb

Economic use: Antiseptic, cooling effect, diaphoretic, diuretic, anti diabetic. The juice of the plant is given in stomach trouble, lowers body temperature and jaundice.

23. *Plantago ovata* Forssk.
Family: Plantaginaceae
Vernacular name: Ispaghol
English name: Ispaghula , Psyllium
Voucher number and collection date: 222. 3 March, 2006
Parts used: Seeds and husk

Economic use: Seeds are used in chronic constipation, dysentery, abdominal pain, piles and rheumatic. Seeds are used for lowering the cholesterol level. Seeds are used in affections of kidney bladder. Decoction of seed is used in cough and cold. Demulcent, laxative, astringent and cooling.

24. *Portulaca oleracea* L.
Family: Portulacaceae
Vernacular name: Kulfa
English name: Purslane
Voucher number and collection date: 223. 3 March, 2006
Parts used: Seeds and herb

Economic use: Astringent, refrigerant, diuretic. Used as pot-herb in salad. Paste or juice is useful in burns, hot inflammation and headache. A poultice of leaves used in burns, boils, ulcer and wounds. Seeds are used in diarrhoea and dysentery. Used in prickly heat powder. Herb is used in dysuria.Whole plant is made in to 'Araq' (Solution).

25. *Sesamum indicum* L.
Family: Pedaliaceae
Vernacular name: Til
English name: Sesame
Voucher number and collection date: 224. 3 March, 2006
Parts used: Leaves and seeds

Economic use: Leaves are used in cholera and infections of urinary ducts, piles and dysentery. Laxative, demulcent. It is used for external application to soften the skin and used to clean and beautify the hair. Poultice of the seeds are useful in ulcers and burns. Crushed leaves are beneficial in treatment of dandruff. Oil extracted from seeds used in the manufacture of soap.

26. *Solanum nigrum* L.
Family: Solanaceae
Vernacular name: Mako
English name: Black Nightshade

Voucher number and collection date: 225. 3 March, 2006
Parts used: Whole herb

Economic use: Laxative, antispasmodic, diuretic, narcotic and sedative. Cardiac tonic. Leaves are used in fevers, colitis, asthma, eczema, ulcer, severe burns. Whole plant is made in to 'Araq' (solution). Used as vegetable. Juice of the herb is useful in constipation, acne. Whole herb is used in 'Araq Makko'.

27. *Sisymbrium irio* L.
Family: Brassicaceae
Vernacular name: Khub Kalan
English name: Wild mustard
Voucher number and collection date: 226. 3 March, 2006
Parts used: Seeds and herb

Economic use: Stimulant, antiseptic, expectorant. Leaves are eaten raw. Seeds are used in piles, dysentery, diarrhoea, bronchitis, pneumonia and asthma. Crushed leaves are used for the treatment of the dandruff. A poultice of seeds is useful in ulcers and burns. Fried over heat and powdered, the seeds are useful against persistent cough. Seeds yield oil that is useful in soap.

28. *Tribulus terristris* L.
Family: Zygophyllaceae
Vernacular name: Gokhur khurd / Behkar
English name: Chaparral
Voucher number and collection date: 227. 3 March, 2006
Parts used: Fruit and root

Economic use: Diuretic, antiseptic, tonic and demulcent. Root is used for smallpox and gonorrhoea. Leaves are used as pot herb. The ash of the whole plant is good for treating the rheumatism. A paste of herb is useful for treatment of stones in bladder.

29. *Trachyspermum ammi (*L.) Spragul
Family: Umbelliferae/ Apiaceae
Vernacular name: Ajwain
English name: Bishop's Weed
Voucher number and collection date: 228. 3 March, 2006
Parts used: Seeds and oil

Economic use: Seeds are used for diarrhoea, dysentery, cholera, colic and indigestion, bronchitis, asthma and common colds, cough. Oil extracted from seeds is useful in rheumatism. Used as spice in pickles.

30. *Viola betonicifolia* Sm.
Family: Violaceae
Vernacular name: Banafsha
English name: Apple-leaf

Voucher number and collection date: 229. 3 March, 2006
Parts used: Whole herb and flowers

Economic use: Ornamental, astringent, diuretic, have cooling effect, laxative and purgative. Roots and fruits are used for kidney diseases, pneumonia and bronchitis. Flowers are used in lung troubles, cough and colds. Leaves are useful for boils.

31. *Withania somnifera (*L.) Dunal
Family: Solanaceae
Vernacular name: Asghan / Ashwagandha
English name: Winter Cheery
Voucher number and collection date: 230. 3 March, 2006
Parts used: Root, leaves, and seeds.

Economic use: Tonic, diuretic, anthelmintic, narcotic and sedative. Roots are used in rheumatism, loss of memory, nervous exhaustion, cough, cold, leucorrhoea, tuberculosis, asthma and ulcers. Root is used in debility, constipation, nervous exhaustion, loss of memory and loss of appetite.

Shrubs: Shrubs include 9 species belonging to 9 families.

32. *Althaea officinalis* L.
Family: Malvaceae
Vernacular name: Risha Khatmi / Tukhm-e-khitmi
English name: Marsh Mallow
Voucher number and collection date: 231. 3 March, 2006
Parts used: Flowers, leaves, roots, fruits and seeds.

Economic uses: Expectorant, demulcent. Leaves and roots are used for burns, snake bite, asthma and bronchitis pneumonia, rheumatism. Seeds are useful in kidney and bladder problems. Leaves and flowers are applied in burns. They are used as a potherb or to thicken soups. The root is also used as a cosmetic, helping to soften the skin. Infusion of the flowers is given in bronchial catarrh and bronchitis.

33. *Berberis lycium* Royle
Family: Berberidaceae
Vernacular name: Sumblu
English name: Berberry
Voucher number and collection date: 232. 3 March, 2006
Parts used: Root, stem and fruit

Economic uses: Antiseptic, tonic, astringent, laxative and diuretic. Paste of the roots are used as remedy for swollen and sore eyes, broken bones, wounds and curative piles, Leaves are given in jaundice. Extract of root (rasaut) is used in ophthalmia. Leaves are used in jaundice. Fruit and leaves decoction is used in diabetes, dizziness. Bark is used for internal wounds, throat pain mouth. Roots are used to cure cancer.

34. *Calotropis procera* (Aiti) Aiti.
Family: Asclepiadaceae
Vernacular name: Aak
English name: Swallow-wort, Sodom apple, Dead Sea apple
Voucher number and collection date: 233. 3 March, 2006
Parts used: Whole plant and latex

Economic uses: Leaves are smoked to cure asthma and cough. It is poisonous. The latex is commonly used for ringworm, dog bitten wounds, skin diseases. Latex and is used in tanning industry.

35. *Justicia adhatoda* L.
Family: Acanthaceae
Vernacular name: Aursa, Arosa
English name: Malabar Nut
Voucher number and collection date: 234. 3 March, 2006
Parts used: Root, flowers, leaves and bark

Economic use: Juice of leaves is used in rheumatism and fevers. Leaves are used in chest diseases, pneumonia, asthma and tuberculosis. Antispasmodic, expectorant, diuretic and antiseptic. Leaves are used to reduce the swelling.

36. *Lawsonia innnermis alba* L.
Family: Lythraceae
Vernacular name: Mehdi
English name: Henna
Voucher number and collection date: 235. 3 March, 2006
Parts used: Powdered leaves, seeds, bark and flowers.

Economic use: Seeds of the herb are used in dysentery. Bark of the herb is used in jaundice. Henna leaves are used in baldness and prickly heat powder. Henna flowers are used in headaches. Refrigerant and diuretic. The root is useful in burning sensation, leprosy. Leaves are useful in wounds ulcers cough, bronchitis and dysentery. Henna leaves are used in boils and burns. Used in hair dyes, oil is used in perfume industry.

37. *Peganum hermala* L.
Family: Zygophyllaceae
Vernacular name: Harmal
English name: Harmala shrub
Voucher number and collection date: 236. 3 March, 2006
Parts used: Seeds

Economic use: Leave decoction is given in rheumatism. Root is applied to kill lice. Harmaline found in Harmala is a poisonous alkaloid. Seeds are used for fevers and asthma. A decoction of the seeds are used as mouth wash. Stimulant, narcotic and antiseptic. It is used for repelling mosquitoes. The decoction of leaves is used for joint pain.

38. *Punica granatum* L.
Family: Punicaceae
Vernacular name: Anar
English name: Pomegranate
Voucher number and collection date: 237. 3 March, 2006
Parts used: Flowers, fruit, seeds, bark, stems and root

Economic use: The root and bark are used for intestinal worms and quenches the thirst; juice is effective against diarrhoea, piles and tuberculosis. Flower buds bruised are given to relieve fever, cough, stop nausea, vomiting. The rind used as tooth powder, anal itching, and strengthens the gums. Dried seeds used in sauces, ice creams, fresh chutneys, sherbet, syrups. They serve as astringent, stomachic, tonic and anti diarrhoea, appetising and digestive. Used as table fruit, timber and fodder. Astringent and anthelmintic.

39. *Ricinus communis* L.
Family: Euphorbiaceae
Vernacular name: Arand
English name: Castor Seed
Voucher number and collection date: 238. 3 March, 2006
Parts used: Oil, leaves, roots and seeds

Economic use: Expectorant, purgative, sedative and narcotic and poultice is applied to swellings. Oil is used in rheumatism, paralysis, asthma, cough and constipation. Seeds are used against warts, freckles. Seeds contain oil called castor oil is used as hair tonic for lubrication, candle making, illumination and in cosmetics. Fruit juice has cooling effect. Poultice of the leaves are useful in boils and swelling.

40. *Sema alexandriana* Miller.
Family: Caesalpiniaceae
Vernacular name: Senna Hindi
English name: Arabian/Alexandrian Senna
Voucher number and collection date: 239. 3 March, 2006
Parts used: Dried leaves and pods

Economic uses: Purgative, expectorant, carminative and laxative. Used in constipation, rheumatism, backache, asthma, anemia, wound dresser, blood purifier, typhoid fever, pimples jaundice pneumonia and leprosy.

Discussion

Plants form the basis of life. They provide ready made food, medicines to fight diseases, services as fodder and forage for cattle, fuel wood, and materials for making furniture and tools, timber for construction and many more useful items. (Iqbal & Hamayun, 2006). Traditional medicines are now-a-days defined as the sum total of all the knowledge and practices, used in the diagnosis, prevention of physical, social and mantle imbalance and relying exclusively on the practical experience and observation handed down from generation to generation whether verbally or in writing. Constant and overuse of the medicinal plants in drugs has resulted in decline in their numbers.

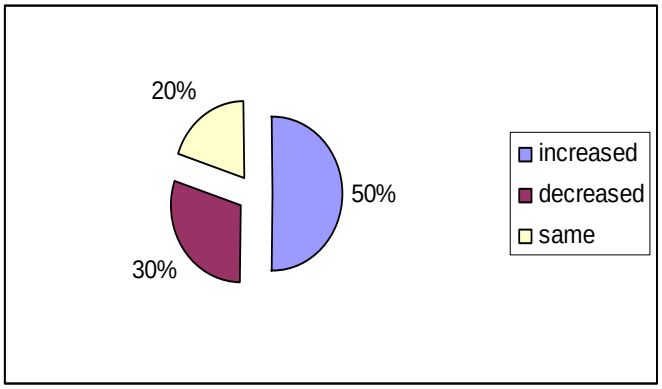

Fig. 2. Percentages of medicinal plants according to their habit.

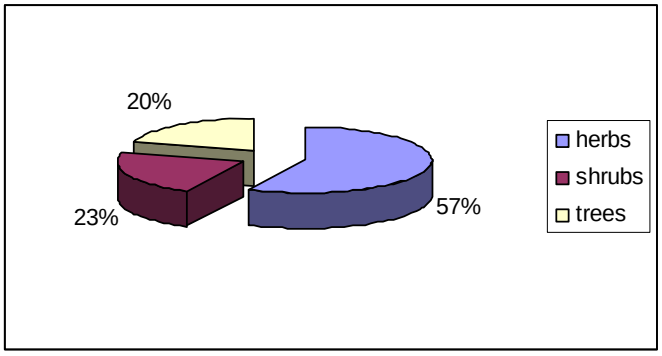

Fig. 3. People trend towards using medicinal plants.

Therefore, there is a need to preserve medicinal plants on the basis of ethnobotanical knowledge gained through local people (Said, 1994).

In Morgah Biodiversity Park, the medicinal plants are cultivated and wildly present in the villages of Morgah, Kotha Kalan, while, some of the medicinal plants are transported from other cities of the country.

According to the data collected form the Morgah Biodiversity Park, highest number of herbs (23 species), were recorded followed by shrubs (9 species) and trees (8 species) (Fig. 2).

About 40 plants, belonging to the 28 families grown locally Dhania *(Coriandrum sativum],* Podina *(Mentha longifolia),* Kulfa *(Protulacae oleraceae),* Anar *(Puncia granatum),* Makko *(Solnium nigrum),* and Kanwar Gandal *(Aloe barbadensis)* for daily use. Most of the plants in the study area were used for multi purposes like fuel wood, furniture making, house construction, grazing of animals, animal feed and spices. The results indicated that people's trend towards using medicinal plants has increased. 50% sellers think people's trend is increased while 30% think the trend is decreased in the last 10 years whereas 20% sellers think that the trend did not change. Results also show that percentage of people in the area who use medicinal plants was 10% - 20% and financial ability to pay when compared with allopathic medicines. The results also indicated clearly that selling the medicinal plants by most of the sellers has increased in the past 10 years. The selling of the medicinal plants increased by 70 %, decreased by 20 % and 10% remained same (Fig. 3).

According to the 'Hakims' (Herbal Doctor) and 'Pansaries' (Herbal Sellers) , there are many threats to medicinal plants found in the area. They are decreasing due to the over exploitation and over consumption. Nobody is giving attention to their cultivation. The indigenous knowledge is only retained by older women above 50 years.

Younger generations do not rely on traditional treatments. The study clearly indicated that older generation was not transferring their knowledge to the younger generation due to the generation gap. There is also a considerable gap between consumption and production of the medicinal plants. This gap must be abridged by employing in various projects realize to plant conservation.

The necessity for use of indigenous knowledge of drugs has long been felt with increasing requirements of drugs and medicines by local communities in rural areas where herbal treatment is practiced. It is desired that the indigenous plants material should be collected, identified, processed and utilized for medicinal as well as for multi-purposes and this knowledge of medicinal plants is in danger of being lost permanently. There is an urgent need to further develop and document the indigenous knowledge and protect such medicinal plants for future prospective and generations.

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