



An Assessment and Documentation of Conventional Medico-Botanical Knowledge of Indigenous Communities Around Chichawatni Plantation Reserved Forest

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Abstract Healing various ailments is probably the most outstanding quality of plants that mankind is dependent upon from ages. Plants are useful for treating a variety of diseases of man and also animals. The Chichawatni Plantation Forest located in Sahiwal District is designated as Reserve Land. This involves huge biological landscape, constituting numerous valuable medicinal plants. The aim of this specific study has been to document conventional knowledge of plant usage and its significance to the local people; identifying the flora; assess the abundance and measures necessary to be taken for protection of plant species. Ethno-medicinal questionnaire had been got filled by people residing in the periphery of Chichawatni Plantation Reserved Forest. This questionnaire provided information about many plants growing at study area. Some of the plants having medicinal value included *Trianthema portulacastrum*, *Calotropis procera*, *Xanthium strumarium*, *Cordia myxa*, *Chenopodium album*, *Citrullus colocynthis*, *Cuscuta reflexa*, *Cyperus rotundus* etc. Local people use them for treating anemia, paralysis, fever, jaundice, piles, diabetes, diarrhea, motion respectively. Some of the plants such as *Capparis deciduas*, *Prosopis cineraria*, *Salvadora oleoides*, *Suaeda fruticosa* and *Malvastrum coromendelianum* were present in less number perhaps because of overexploitation as having greater medicinal importance, indicating requirement of their preservation. There is need for sustainable use and conservation of useful medicinal plants in the area so that their constant availability is ensured.

Keywords Ethnobotany, medicinal plants, traditional knowledge, documentation

Introduction

Utilization of plants for human and animals ailments is being practiced by man from time immemorial. Medicinal plants are economically important because of their antibacterial, antioxidant, anticarcinogenic, antifungal, analgesic, in addition to insecticidal properties [1]. All over the world usage of natural flora for treatment of various ailments are believed to be safer, effective, inexpensive and are achieving acceptance among the people. Natural herbal remedies are nicely practiced throughout Asia. China and India are the countries that are the source of most internationally recognized medicinal plants. Utilization of natural remedies is increasing in European countries and America pertaining to treating the ailments due to consumption of modern-day unnatural diets and frantic way of living. The compound obtained from Far-east plant *Artemisia annua* is most important for the antimalarial medication in recent years [2]. Africans plants *Harpagophytum procumbens* (devil's claw) and *Pelargonium sidoides* (African Geranium) are very popular in Europe as medicinal plants [3]. A study was conducted in eight Districts of Central Punjab, Pakistan to explore ethnobotanical usage of plants by the indigenous people. A total of 286 species from 69 families were documented from the area, with Poaceae and Asteraceae as the most abundant families.



People were using indigenous flora for various purposes, viz., agricultural tools, roof thatching, mats and baskets, predominantly as medicinal plants from generations [4].

Ethno-Veterinary medicines can be an interdisciplinary research concerned with healthful efficiency and livestock generation in addition to medical care [5]. This constraint the details involving health issues in addition to how they can possibly be handled; cures in addition to restorative methods regarding cure in addition to protect; nutrition, management in addition to reproduction setting up [6]. The people living in Cholistan, Punjab rear livestock and employ plants as herbal remedies, as preventive measures regarding ailments of themselves and their livestock that are easily obtained from the pasture. Cholistan Desert provides a fantastic scope towards the ethnomedicinal research the way it is actually rich in local natural herbal resources [7].

It is rightly predictable that the difficulties concerned with conservation as well as sustainability are usually connected, so endeavors must be made to tackle these kinds of problems [8]. Botanic Gardens are engaged in important role with regard to plant conservation in the best interests of the people [9]. It is observed that local communities of Pakistan are mostly conserving plants. Natural resources are being successfully utilized by several traditional farming methods. Initiatives are being made to provide food, nutrition as well as health care for the local people and also the documentation of traditional knowledge as well as conservation of important medicinal flora [10]. Traditional knowledge is being utilized by different herbal and homeopathic medicine producing companies. Those are several in numbers which makes Pakistan one of major countries that are exporting medicinal plants [11]. Chichawatni Plantation Reserved Forest possesses many plants of great medicinal importance. The purpose of present study was to document the traditional medico-botanical knowledge of indigenous people, create awareness, identify and conserve the local flora.

Study Area

Chichawatni Plantation Reserved Forest is located in Sahiwal District along Lahore – Karachi Railway line between Kassowal and Dad Fatiana Railway Stations. It lies in Latitude 30.56389 to the North and longitude 72.76667 to the East [12]. It is second artificially planted irrigated plantation of Punjab. Chichawatni Plantation Reserved Forest is irrigated from the Lower Bari Doab Canal through two forest distributaries. Forest is in the form of linear plantation. It has total area of 11531 acres. Climate of the area is semi-arid. Summers are very hot while winters are of short duration but severe. Initially the plantation at Chichawatni Forest was typical Dry Tropical type [13]. The indigenous flora had been Wan (*Salvadora oleoides*), Frash (*Tamarix articulata*) and (*Prosopis cineraria*) as well as Karir (*Capparis aphylla*). Presently Shisham as well as Eucalyptus are the major types growing more than a significant portion of the actual planting area. Various other types of plants growing are mulberry, semal, bakain, kiker as well as Bamboo. Every year 500 acres are being afforested / regenerated.

Methodology

Field trips were organized to collect herbaceous plants from the study area. For collection of plants specimens' random sampling technique was employed. Questionnaire along with interviews were conducted to get information about medicinal use of plants from elderly indigenous people. The compiled data had been verified using relevant available literature and reports.

Results

The collected data were arranged alphabetically with respect to family name. Along with scientific names of the plants their local names and uses have also been recorded.

Aizoaceae

Trianthema portulacastrum Linn.

Local Name: It- sit



Plant serves as fodder by animals. Leaves are rich source of iron and minerals. Garland made of its stem cuttings is put around neck of anemic children. Leaf paste applied on wounds. Plant is used in powdered form purify blood and cure swelling and pain of joints.

Trianthea triquetra Rottl and Wild.

Local Name: Loonaki

Plant reduce soil salinity and used as fodder for cattle.

Zaleya pentandra (Linn.) Jeffrey

Local Name: Kali it- sit

Plant extract is used in snake bite.

Amaranthaceae

Aerva javanica (Burm.f.) juss.

Local Name: Bui, Booien

Decoction useful in body swelling.

Amaranthus viridis Linn.

Local Name: Chulai, Puiao, Ganar

Roots useful in leucorrhoea, piles and regulating menstrual cycle. Fresh plant is used as vegetable.

Digera muricata (Linn.) Mart.

Local Name: Tandala, Tartara

Leaves serve as vegetable. The plant is laxative. Plant also consumed as fodder by cattle.

Asclepiadaceae

Calotropis procera (Ait.) Ait f.

Local Name: Ak, Madar, Mundar

Oil extracted from leaves is used on paralyzed parts of body. Flowers are mixed with flour and given to cattle for treating "Bhaa" disease. It hosts many insects in sandy areas. Latex is used in tooth. Wood is used as fuel. Latex used for skin diseases.

Leptadenia pyrotechnica (Forssk.) Dcne.

Local Name: Khip

Wood is used as fuel.

Asteraceae

Carthamus oxyacantha M. Bieb.

Local Name: Poli

Its roasted seeds serve as staple food and for the treatment of intestinal worms in children.

Conyza bonariensis Linn.

Local Name: Ram Devi

Plant extract cures diabetes. Plant is used as fodder for animals.

Sonchus asper (Linn.) Hill

Local Name: Garwa, Dodahak

Powder of plant is useful on wounds and boils. It is used as fodder for cattle.

Xanthium strumarium Linn.

Local Name: Bhangara, Khagwara, Layah

Leaves are used for curing fever. Plant as a whole is effective emollient, diuretic and astringent. Roots cure earache.

Bombacaceae

Bombax ceiba Linn.

Local Name: Simbal, Semal



The fiber obtained from the seeds is used for stuffing pillows and mattresses. Powder of dry flower is used by women suffering from excessive bleeding during menstruation. Its flower extracts cures leucorrhoea.

Boraginaceae

Cordia myxa Linn.

Local Name: Lasura

Unripe fruit is used in pickle that is carminative. Ripened fruit is used in the medicines for lungs. Its pulp is added in medicines for brain. Its green fresh leaves used in treatment of jaundice. Its wood is best for manufacturing farmer tool and fuel purpose.

Brassicaceae

Coronopus didymus (Linn.)Smith.

Local Name: Thandibooti, JangliHala

Plant is used as cooling and refrigerant agent by man and fodder by animals.

Capparidaceae

Capparis decidua (Forssk.)Edgew.

Local Name: Karir

Unripe fruit used in pickle is carminative. Ripened fruit is eaten happily. Its wood is used for roof, farmer tools and fuel.

Chenopodiaceae

Atriplex crassifolia C.A. Mey.

Local Name: Dimmok, Aambokh.

Plant is used as fodder by grazing animals.

Chenopodium album Linn.

Local Name: Bathoo

Fresh leaves are crushed to coat courtyards of village houses. Furthermore its extract is used for increasing appetite, blood cleansing and to treat piles. It is diuretic and aphrodisiac.

Chenopodium murale Linn.

Local Name: Krund, Bathu

Leaves are good source of minerals so used as a vegetable. The plant is anthelmintic and stomachic. It is also eaten by grazing animals.

Suaeda fruticose Forssk.

Local Name: Lunak

Ash of the plant is used in washing. Camels use it as fodder.

Convolvulaceae

Convolvulus arvensis Linn.

Local Name: Lehli, Mander, Singhi, Valoor, Hiran Khuri

Whole plant is medicinally purgative and is also used as fodder by grazing animals.

Cucurbitaceae

Citrullus colocynthis (Linn.) Schrad.

Local Name: Indryan, Kor Tumba.

Fruit is used in the medicines of stomach, urinary tract, skin problems and tetanus. It is used for treatment of diabetes. Root is used as 'Miswak' and in snake bite.

Mukia maderaspatana (Linn.) M.J. Roem.



Local Name: Chiratia

Root cures gas problem in stomach.

Cuscutaceae

Cuscuta reflexa Roxb.

Local Name: Akas Bail, Amer bail

Stem extract is used in diarrhea and jaundice. It is used for treatment of cough and asthma. It is also being used in the medicines of ulcer.

Cyperaceae

Cyperus rotundus Linn.

Local Name: Motha, Deela

Its powder is useful in vomiting and motion. It is used as fodder by grazing animals.

Euphorbiaceae

Chrozophora tinctoria (Linn.) Raf.

Local Name: Bakwachal Booti, Ner Booti, Kappo, Chisik

Seeds cause vomiting. Plant produces a coloring material.

Euphorbia prostrata Ait.

Local Name: Hazaardani, Dhodhak

Plant paste used to stop bleeding and pain, also act as blood purifier. It is used as fodder by grazing animals.

Ricinus communis Linn.

Local Name: Arind, Harnola

Plant stem and fruit is used in arthritis. Leaves have narcotic, purgative and poisonous characteristics. Seeds are used in scorpion sting.

Malvaceae

Malvastrum coromandelianum (Linn.) Garcke

Local Name: Damhni plant

Leaves paste used to alleviate pain. Flowers have diaphoretic properties. Plant used as fodder by grazing animals.

Malva parviflora Linn.

Local Name: Sonchal

Decoction of plant is used to cure cough flue and fever. Plant is used as fodder by grazing animals.

Meliaceae

Azadirachta indica (Linn.) A. Juss.

Local Name: Neem

Inflorescence and leaves are used in the blood purifying and malarial medicines. Its wood is utilized for making second quality furniture and also serves as fuel wood. Seeds cure piles and constipation.

Melia azedarach Linn.

Local Name: Dhrek, Bakain

It is used as timber and fuel wood. Flowers and leaves are applied as poultice in headache whereas juice of leaves is used internally as diuretic. It is a honey bee species. Leaves used as fodder for livestock.

Mimosaceae

Acacia modesta Wall.

Local Name: Phulahi

Its wood is hard and more durable, so used in farmer tools. Fresh stem is used for miswak for good dental care. It is also used as fuel wood. Leaves used for treatment of gas trouble and abdominal diseases.



Acacia nilotica (Linn.) Delile.

Local Name: Desi Kikar, Babool

Gum is taken by men to increase sexual potentiality. The leaves and fruits serve as fodder for cattle. Stem and branches are used as fuel. Its wood is used for making household articles and agricultural implements. It is a honey bee species.

Albizia lebbek (Linn.) Benth.

Local Name: Siris, Shrien, Sars

Wood is used for medium class utilities. Leaves are used in the medicines of piles. Paste of leaves and bark is used to cure insect bite. It is also used as fuel wood. Fresh leaves are eaten by sheep.

Prosopis cineraria (Linn.) Druce

Local Name: Jand, Kandi

Its wood is very durable and hard, so used in agricultural tools. Its fruit is used in the treatment of chronic dysentery. Its soft branches are used as fodder by browsing animals.

Moraceae

Ficus racemosa Linn.

Local Name: Gular

Fruits are astringent and carminative. Wood is good for making furniture.

Ficus religiosa Linn.

Local Name: Pipal

Leaves and shoots are purgative moreover used for skin diseases. Fruit is used by human and animals both. Wood is used in the preparation of quality furniture and used as fuel. It is planted in public places for its large sized canopy having shadow for the people seating. Bark extract is used to regularize the women menses cycle, as well as liver diseases and for the treatment of flu and fever. Fruit is used in the treatment of constipation and as coolant.

Morus alba Linn.

Local Name: Shahtoot, Tut sufaid, Mulberry

Fruit is very coolant, good source of Vitamins and carbohydrates, used against tonsils and liver disorders. Wood is used for sports items and good for fuel.

Myrtaceae

Eucalyptus citriodora (Hook) K.D. Hill & L.A.S. Johnson

Local Name: Safaida

Leaves are rubbed and smelt to cure headache. Wood is used as fuel wood. It is also used to make match stick and paper.

Oxalidaceae

Oxalis corniculata Linn.

Local Name: Khattibooti, Khatkal

Plant sap cures skin diseases. Leaves act as cooling agent in stomach disorders, fever and acute headache. Leaves are cooked as vegetable. Whole plant is used in the treatment of a cattle disease 'Gal ghotoo' and human disease malaria. Plant is used as fodder by grazing animals.

Papilionaceae

Alhagi maurorum Medic.

Local Name: Jawaian

Plant is diuretic and laxative.

Butea monosperma (Lam.) Taubert

Local Name: Chachra, Plata



Leaves are used as plates for cultural dishes and as fodder for cattle. Flowers are used in some sexual tonics. Wood serves as fuel wood. Mucilage from the plant used to treat asthma, abdominal pains and epilepsy.

Dalbergia sissoo Roxb.

Local Name: Shisham, Tali

Stem is used for best quality furniture, farmer tools, house hold items, construction material, fuel and other utilities. Its soft branches are used as miswak. Its fresh bark is used in the medicines of skin allergy.

Rhynchosia minima (Linn.) DC.

Local Name: Snout Bean, Turvel, Dhaktaranghevgda

Plant is used as fodder by grazing animals.

Sesbania sesban (Linn.) Merrill.

Local Name: Jantar

It is very favorite fodder for goat and cattle.

Trifolium alexandrinum Linn.

Local Name: Barsin

Plant is used as fodder by grazing animals. Recommended for milk in animals.

Trifolium resupinatum Linn.

Local Name: Mena, Shatala

Plant is used as fodder by grazing animals.

Poaceae

Arundo donax Linn.

Local Name: Nara bans, Nar, Nalu, Nal

Decoction of rhizome is diuretic and stimulates menstrual discharge. Whole plant is dried and is used for roofing and is also used as a fuel.

Bambusa glaucescens (Wild.) Sieb. ex Munro

Local Name: Bans, Bamboo

The wood is used in making huts and ladders. The branches are also used in making baskets.

Cynodon dactylon (Linn.) Pers.

Local Name: Khabbal, Dab, Tala, Koora, Madana

Plant is used as fodder by grazing animals. An infusion of grass is given orally for treatment of blood pressure. Plant's paste is applied on wounds to check bleeding.

Desmostachya bipinnata (Linn.) Stapf

Local Name: Dabh, Kusa

A collection of dried stem is named as 'Jharoo', used for home sweeping. Plant is used for fodder and roof thatching.

Saccharum bengalense Retz.

Local Name: Kana, Sarkanda

Fresh leaves are soaked in the mouth of cattle for the treatment of mouth diseases. Dried stem or whole plants are used for roofing and thatching as well as for boating and burning also.

Rhamnaceae

Ziziphus mauritiana Lamk.

Local Name: Bair

Fruit is tasty, eaten nutritionally as well as medicinally. Soft branches and their leaves are consumed by grazing animals. Wood of the plant is very good for furniture, fence and fuel.

Salvadoraceae

Salvadora oleoides Decne.



Local Name: Van, Pilu, Jal

Common in graveyards, where its leaves and soft branches are placed at the graves, moreover also eaten by cattle as fodder. Its soft stem is good Miswak. Fruit is appetizer, laxative and carminative, used for piles, tumors and spleen diseases. Wood is used for fuel.

Solanaceae

Solanum surattense Burm. f.

Local Name: Kandiyari, Manraghonay, Mamoli

Fruit powder is taken for abdominal pain and gastric trouble. Plant is used in cough, asthma and fever. Its fresh fruit paste is used for the treatment of joint pain. It reduces uric acid.

Tamaricaceae

Tamarix aphylla (Linn.) Karst.

Local Name: Frash, Farwa

Its wood is light, so used in house hold furniture. Its dry branches are used as fuel. Its bark is used in tanning. This tree is under great cutting pressure.

Zygophyllaceae

Fagonia indica Burm. f.

Local Name: Dhamian, Dam

The extract of plant is administered to both man and woman for sexual vitality, moreover it is recommended as coolant and blood purifier. Ash is given to the children against anemia. Soft branches are grazed by animals. Plant powder mixed with honey is administered for the treatment of women infertility 'Athra'.

Discussion

Use of plants for medicinal and other day to day needs is more common in rural as compared to urban areas. During current study 58 medicinally important plant species belonging to 27 families were recorded from the study area. The local people were aware of the traditional uses of plants passed on to them by their forefathers but they were still ignorant of the medicinal importance of some of the plants. People have frequent consumption of only those plants that are well known to them and these are very few in number. Many plants identified were effective against a variety of ailments which are common including intestinal tract infections, skin problems, liver problems, eyes infections, stomach problems, nausea, etc. The site selected for study is really rich in herbaceous plant life with great healing properties. The area is subjected overexploitation in terms of overgrazing, chopping, intentional fires and deforestation and there was an immediate need for proper ecological management for the protection of ethnobotanical resources i.e., inexpensive natural herbs. There are many plants which are poisonous in nature yet if they are utilized in limited quantity they do not possess any kind of hazardous effect. The manner in which the plants should be used has been passed from generation to generation thus people are aware of their proper usage. However also it really is important to conserve the precious healing plant resources seeing that love for use of the plant is achieving greater acceptance internationally these days [14-15]. Plant resource conservation requires engagement of the local community that'll reduce the stress on the plants and therefore will prevent them from disappearing from the environment [16].

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