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Ethnomedicinal Studies of Kala Chitta Hills of District Attock, Pakistan

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Abstract: The present study was carried out to assess, record and report the ethnobotanical potential of the Kala Chitta Hills (salt range) of District Attock. Results of the present investigation were based on medicinally important 40 species (21 families). These plant species has other benefits too along with their major utilities like apiculture, sericulture, food and fruits. The Kala Chitta Hills of the Salt Range are very unique. Due to increase in population masses, demands of people increases, causing great pressure on the products of the area. This continuous pressure for last few decades has disastrously damaged the natural characteristic ecosystem of the area. The region is very rich in having medicinal plants. To understand the indigenous knowledge of the local people through ethnomedicinal study is very important for creating awareness among them regarding sustainable natural resource management. About 100 informants including local people, hakims and medicinal businessmen were interviewed for collection of ethnomedicinal data through the questionnaire. Results were compiled, issues were discussed, conclusion was made and recommendations are suggested for the future.

Key words: Ethnomedicinal importance, plant species, Kala Chitta Hills

INTRODUCTION

Geo-climate of the area: Attock District, which takes its name from the famous ford and fort at the northwest corner of the district, a name, accorded to it by the Emperor Akbar. It lies between 33°-7' and 34°-0' North latitude and 71°-45' and 73°-0' East longitude. It is bounded on the North and West by the River Indus and in the East by Haripur and Rawalpindi districts while in its South lies the Chakwal district[1].

The rainfall for the district as a whole is scanty and uncertain. Its yearly distribution is even worse. The annual average rainfall in the Attock district is 409.09 mm[2]. The mean maximum temperature in January is 18°C and the mean minimum January temperature is 3°C. The mean maximum June temperature is 41°C and minimum is 38°C[2].

Hilly system: Of the hills of the district, the most important are the Kala Chitta Hills. This wall of hills, which runs completely across the northern part of the district and cuts off the Attock Tehsil from the other Tehsils, is a rough wedge with its base resting on the Indus and gradually tapering as it proceeds eastward till it dies away on the border of the Fatehjang and Rawalpindi District, about 15 (26 km) miles north west of Rawalpindi Cantonment and within about 3 (5 km) miles of the western extremity of the Margalla mountain range. Its breadth at its base is about 12 (20 km) miles. Its length is 45 (77 km) miles. The hilly tract is formed of two portions (The southwestern portion known as the Kala Pahar or Black mountain and on its northern side The Chitta, or White Hill) differing very much in appearance from each other and its structure is of considerable geological interest.

The ethnobotany: The plants have always been more important than politics both to human daily living and to history. Even today, millions of subsistence farmers have no idea who their nominal political leaders are, but they know a great deal about their plants sometimes even more than scientists. Furthermore, plants have had a greater historical impact than have politicians. In Pakistan what the western world would identify as Herbal medicine is referred to as Unani medicine. This system of medicine was introduced by the Greco-Arabic society, who based many of their theories and remedies on Ayurveda, a practice using medicinal plants dating back to approximately 2500 BC[3]. Keeping this in view, the ethnomedicinal work has been done in Kala Chitta Hills of District Attock and considered necessary to collect information about the medicinally important plants because no such work has been done previously in this area. The area is rich in medicinal flora and large number of native population offer an immense scope for such ethnomedicinal studies, thus demanding an extensive ethnomedicinal survey.

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MATERIALS AND METHODS

The questionnaire was devised to identify the knowledge of rural people about the collection of plants and their ethnomedicinal uses within the community. Several study trips were arrange from August, 2002 to November, 2002 and from February, 2003 to May, 2003. The field works were totally based on interviews and transect walks.

Surveys: The method used during the fieldwork was "Survey". The ethnomedicinal profile of the rural people was studied by frequent surveys to Kala Chitta Hills and surrounding villages. Ethnomedicinal informations were gathered through interviewing the local people and filling of questionnaires from local Hakims, farmers, shopkeepers and other plant sellers. Available literature, surveys and general observations add tremendous information required for the study.

General meetings: During the surveys general meeting were held wherever possible, attended by both male and female members of community, resource persons, local hakims, collectors and sellers of medicinal herbs. This effort will help to aware the local people about the conservation of useful plants for their future generations.

Identification: The plants were collected in wild state from different sites of Kala Chitta Hills. They were dried, preserved and identified with the help of Flora of Pakistan[4]. Confirmation of plants was done in the herbarium of Quaid-e-Azam University, Islamabad. After identification the plants were deposited as voucher specimen for further references in the herbarium of Quaid-e-Azam University, Islamabad, Pakistan.

Enumeration: The plants are arranged family wise alphabetically, followed by vernacular names, flowering season, status, part used, medicinal and other uses.

RESULTS AND DISCUSSION

Results of the present investigation were based on medicinally important 40 species belonging to 20 families of Angiosperms. The well represented families were Asteraceae, Poaceae, Papilionaceae, Solanaceae, Euphorbiacea, Mimosaceae and Liliaceae.

The availability of medicinal plants as studied during the research work was found maximum in Spring season (50%) followed by Winter and Summer season (20% each) and Autumn (only 10%). The interviewing of various age groups for their knowledge of medicinal plants showed that older people possesses maximum understanding regarding the utility of medicinal uses of local plants (55%) followed by the elder (30%) and the youngs (15%). Medicinal plants were utilized for various treatments 100% by the old people (greater than 60 years age) as they are reluctant to consult doctors for medication, the people belonging to the age of 30-60 years utilized the local plants medicinally about 50% and were always found ready to consult doctors, people belonging to the age group of 15-30 years utilized local plants medicinally only 20% and were fond of consulting doctors while the children of less than 15 years age were having 50-50% chances of either utilizing local plants or consulting a doctor depending upon the decision of the elders. As far as the utilization of local plants for medicinal purposes is concerned the local people shares a major contribution of 85% while the share of visitors from different areas was only 15%.

Medicinal plants

(I) Liliaceae.

1. Botanical name = *Allium sativum.*
   Local name = Thoom.
   Part use = Bulb.
   Flowering period = January-April
   Voucher specimen no = 57
   Medicinal uses = Garlic is diaphoretic, diuretic, expectorant, stimulant and very effective antiseptic. It is used for hypertension, Leprosy, respiratory diseases, whooping cough, children cold and cough.
2. Botanical name = *Allium cepa.*
   Local name = Piaz.
   Part use = Bulb / Underground stem.
   Flowering period = January - April
   Voucher specimen no = 49
   Medicinal uses = It is used for gastric trouble.
3. Botanical name = *Aloe vera* L.
   Local name = Kunwargandal.
   Part use = Whole plant, especially leaf gel.
   Flowering period = September - November
   Voucher specimen no = 43
   Medicinal uses = It is useful for general pain, wounds, antiseptic, heart diseases, gastritis, stomach diseases, diabetes and dermatitis eizeyma.
4. Botanical name = *Asphodelus tenuifolius*
   Local name = Bokhat
   Part use = Leaves
   Flowering period = February-April
   Voucher specimen no = 80
   Medicinal uses = Used as condiment. It is recommended in fever.

(ii) Malvaceae.

5. Botanical name = *Abutilon indicum* L.
   Local name = Peeli buti
   Part use = Leaves and flowers
   Flowering period = Througout the year
   Voucher specimen no = 62
   Medicinal uses = It act as a resolvent, analgesic, anti-inflamatory. It is used to cure diarrhea, bleeding piles and toothache.

(iii) Meliaceae.

6. Botanical name = *Melia azedarach* L.
   Local name = Dhrak/ bakayan
   Part use = Leaves, fruits and flowers
   Flowering period = March-April
   Voucher specimen no = 89
   Medicinal uses = Young branches, leaves and fruits are used as carminative for cattle and glandular swelling. Flowers used in "surma" (an eye tonic).

(iv) Mimosaceae.

7. Botanical name = *Acacia nilotica wall*
   Local name = Kikar
   Part use = Leaves, stem bark, fruit gum
   Flowering period = March-November
   Voucher specimen no = 64
   Medicinal uses = It is useful for constipation, Diarrhoea, Dysentery and throat diseases.
8. Botanical name = *Acacia modesta wall*
   Local name = Phulai
   Part use = Gum
   Flowering period = March-May
   Voucher specimen no = 81
   Medicinal uses = Sexual tonic, restaurant.
9. Botanical name = *Albizzia lebbek* L.
   Local name = KalaSirin
   Part use = Bark, flowers, seeds and pods.
   Flowering period = May-July
   Voucher specimen no = 83
   Medicinal uses = Bark and seeds are used as restorative and in Piles, diarrhea, dysentery. Flowers are used in skin diseases. All parts are used in snake bite.
10. Botanical name = *Albizzia procera* L.
    Local name = Chhita Sirin
    Part use = Bark, flowers, seeds and pods.
    Flowering period = May-July
    Voucher specimen no = 84
    Medicinal uses = Bark and seeds are used as restorative and in Piles diarrhea, dysentery. Flowers are used in skin diseases. All parts are used in snake bite.

(v) Moraceae.

11. Botanical name = *Ficus religiosa* L.
    Local name = Pipal.
    Part use = Bark of tree, fruit, seeds.
    Flowering period = October-November
    Voucher specimen no = 74
    Medicinal uses = Bark of tree and fruits are used against Asthma, weakness of urinary bladder and constipation. Decoction of bark is used for vomiting.
12. Botanical name = *Ficus benghalensis* L.
    Local name = Bohr, Bargad.
    Part use = Aerial roots, stem bark, latex.
    Flowering period = April-May
    Voucher specimen no = 86
    Medicinal uses = Aerial roots are used to treat diarrhea. It is used to control rise of blood sugar among diabetic patient emission, piles, latex is cracking of feet, Latex mixed with honey is given orally
13. Botanical name = *Morus alba* L.
    Local name = Chitta toot / Sufaid toot.
    Part use = Fruit and bark.
    Flowering period = March-April
    Voucher specimen no = 95
    Medicinal uses = It act as a refrigerant and anthelmintic. It is used as a remedy for sore throat
14. Botanical name = *Ficus palmata*
    Local name = Jangli anjeer/khabara
    Part use = Fruit and latex
    Flowering period = April and October
    Voucher specimen no = 58
    Medicinal uses = It act as expectorant. It is used to treat kidney stones.

(vi) Myrtaceae.

15. Botanical name = *Eucalyptus globulus.*
    Local name = Sufaida.
    Part use = Seeds, oil of leaves.
    Flowering period = March
    Voucher specimen no = 77
    Medicinal uses = It act as an antiseptic, antibacterial, Diuretic. It is used as cold and cough remedies, throat lozenges, Malaria and toothache.
16. Botanical name = *Psidium guajava* L
    Local name = Amrood
    Part use = Fruit and leaves
    Flowering period = May
    Voucher specimen no = 76
    Medicinal uses = Dried fruit is used to treat diarrhea, stomachache and diabetes, hot water extract of dried leaves is taken orally for diabetes.

(vii) Nyctaginaceae.

17. Botanical name = *Mirabilis jalapa* L.
    Local name = Gul-e-Bashi
    Part use = Leaves, flowers and roots
    Flowering period = March-July
    Voucher specimen no = 71
    Medicinal uses = It act as anti-inflammatory, purgative, blood purifier. It is used to treat piles jaundice and skin diseases.

(viii) Oxalidaceae.

18. Botanical name = *Oxalis corniculata* L.
    Local name = Khatti Mitthi booti
    Part use = Whole plant
    Flowering period = March-December
    Voucher specimen no = 59
    Medicinal uses = Juice of the plant is given in stomach trouble. Decoction of the root is given for worms.

(ix) Papilionaceae.

19. Botanical name = *Argyrolobium roseum* Jaub and Spach.
    Local name = Makkhi Booti
    Part use = Whole plant.
    Flowering period = April-October
    Voucher specimen no = 51
    Medicinal uses = It is used as aphrodisiac and tonic. It is also given to goats to increase milk and butter production.

(x) Poaceae.

20. Botanical name = *Cynodon dactylon* L
    Local name = Khabbal grass
    Part use = whole plant
    Flowering period = April-October
    Voucher specimen no = 31
    Medicinal uses = Paste apply externally on eyelids for reducing the swelling, redness of eye and relieve the eye pain, It is applied for skin injuries.
21. Botanical name = *Avena sativa* L
    Local name = Joundri
    Part use = Seeds

Flowering period = March-April
Voucher specimen no = 60
Medicinal uses = It is useful for Nervous exhaustation, skin allergies.

22. Botanical name = *Zea mays.*
Local name = Makki.
Part use = Stigma from female flower.
Flowering period = July-November
Voucher specimen no = 44
Medicinal uses = It is used against the Inflammation of urinary system. Bladder cleaner and removal of Kidney stones.

(xi) Polygonaceae.

23. Botanical name = *Polygonum plebijum* R. Br.
Local name = Derank
Part use = Whole Plant
Flowering period = February-July
Voucher specimen no = 75
Medicinal uses = Dried and powdered plant is taken internally in pneumonia.

24. Botanical name = *Rumex dentatis* L.
Local name = Jangli palik
Part use = Whole plant
Flowering period = March-July
Voucher specimen no = 82
Medicinal uses = It is used to cure inflammation of urinary system. It is used for bladder cleaner and removal of kidney stones.

(xii) Portulaceae.

25. Botanical name = *Portulaca oleracea* L.
Local name = Kulfa
Part use = Whole plant
Flowering period = May-July
Voucher specimen no = 69
Medicinal uses = Hot water extract of dried aerial part is taken orally as a diuretic. Water extract of the plant is taken for asthma.

(xiii) Rhamnaceae.

26. Botanical name = *Zizyphus nummularia* L
Local name = Mallah
Part use = Leaves and fruits
Flowering period = March-June
Voucher specimen no = 54
Medicinal uses = It is used as a tonic for urinary bladder and hair cleaner. It is useful for insomnia.

(xiv) Rosaceae.

27. Botanical name = *Rosa indica* L.
Local name = Gulab.
Part use = Flowers and juice.
Flowering period = Throughout the year
Voucher specimen no = 37
Medicinal uses = It has cooling effects on eye. It is useful for indigestion, constipationand eye diseases.

(xv) Scrophulariaceae.

28. Botanical name = *Verbascum thapsus*
Local name = Gidder tambakoo
Part use = Leaves and flowers
Flowering period = March-October
Voucher specimen no = 42
Medicinal uses = It act as expectorant and antispasmodic. It is used to cure tuber culosis, respiratory ailments and bronchitis. Leaves smoke is used to ease chest complaints and asthema.

(xvi) Solanaceae.

29. Botanical name = *Solanum surratense Schrad* and Wenal
Local name = Mohakri
Part use = Fruit and leaves
Flowering period = Throughout the year
Voucher specimen no = 22
Medicinal uses = It is used against cough, bronchitis, respiratory trouble, abdominal pain and for blood purification.

30. Botanical name = *Solanum nigrum* L.
Local name = Kachmach/Makko
Part use = Whole plant
Flowering period = Throughout the year
Voucher specimen no = 4
Medicinal uses = It is used in liver diseases, diabetes, Rheumatism, diarrhea and constipation. It is also used in skin and heart diseases. Also act as expectorant and sedative.

31. Botanical name = *Datura innoxia* L.
Local name = Aam dhatura
Part use = Whole plant, seeds poisonous
Flowering period = March-July
Voucher specimen no = 96
Medicinal uses = Leaves are applied to sores, fruits are sedative and intoxicating, seeds are narcotic and antiseptic.

32. Botanical name = *Withania somnifera*
Local name = Axaon
Part use = Roots and fruits
Flowering period = Round the year
Voucher specimen no = 65
Medicinal uses = Used against old cough, asthema, gastritis. It is antispasmodic and also relieve the abdominal pain.

33. Botanical name = *Capsicum annuum.*
Local name = Lal mirch / Hari mirch.
Part use = Fruit and seeds.
Flowering period = May-August
Voucher specimen no = 72
Medicinal uses = It act as a stimulant and antiseptic. It is used as a blood circulation stimulant for cattle. Also used as condiments and spices.

34. Botanical name = *Withania coagulens* L.
Local name = Chitta Verna
Part use = Fruit and seeds.
Flowering period = September - November
Voucher specimen no = 92
Medicinal uses = It is used for digestive disorders, gastritis and blood purification. Seeds are used for Diabetes.

(xvii) Sapindaceae.

35. Botanical name = *Dodonaea viscose* L.
Local name = Sanatha
Part use = Leaves
Flowering period = February-March
Voucher specimen no = 50
Medicinal uses = Leaves are used in treatment of wounds, swelling, burns, fever and rheumatism.

(xviii) Umbelliferae.

36. Botanical name = *Foeniculum vulgare.*
Local name = Sonf.
Part use = Seeds and Leaves.
Flowering period = February-April
Voucher specimen no = 70
Medicinal uses = It is used for indigestion and gastritis. Seeds used for strengthening the Eye sight.

(xix) Violaceae.

37. Botanical name = *Viola stocksii* L.
    Local name = Banafsha
    Part use = Whole plant
    Flowering period = March-April
    Voucher specimen no = 93
    Medicinal uses = Used in Cold, cough and fever.

(xx) Verbanaceae.

38. Botanical name = *Vitex negundo* L.
    Local name = Marvand
    Part use = Leaves and roots
    Flowering period = March-June
    Voucher specimen no = 61
    Medicinal uses = Fresh leaves are used in the form of bandage for chest and back pain. Dried leaves are smoked for the relief of headache. Also used for skin allergy.

(xxi) Zygophyllaceae.

39. Botanical name = *Tribulus terrestis* L.
    Local name = Bhakra
    Part use = Whole plant
    Flowering period = February-April
    Voucher specimen no = 52
    Medicinal uses = It has cooling effect. It is diuretic, demulcent, astringent. It is used to cure heart diseases and back pain.
40. Botanical name = *Pegnum hermala* L.
    Local name = Hermal
    Part use = Whole plant
    Flowering period = May-June
    Voucher specimen no = 85
    Medicinal uses = Plant have insecticidal properties and is used as a brain tonic.

DISCUSSION

Ethnomedicinal study is the most important approach to follow the natural resource management of indigenous people. It is a multidisciplinary science of botany, ecology and anthropology. This multidisciplinary approach gives more insight into the management of medicinal reserves in a period of tremendous environmental stress. Unfortunately due to the human factors, which have influenced the ecological balance of these delicate ecosystems, we are presently faced with possibility of losing our forests. Actually plants play their role in existence of life on this planet.

This is a complex work where an ethnomedicinal study can bridge the social and natural world separated so much in education and professional training. All aspects of people – plant relationship should be studied in relation to sustainable management of this golden gift of God[5].

The fact about the indigenous knowledge is that it tends to be held by the older as compared to the younger in the society. Most of the people interviewed (both local and Hakims) were over the age of 50 years. Their existing knowledge had passed on from past generations. It is very essential that this knowledge should be documented and updated according to the modern requirements of the life. This will not help only to make the life of the people of remote areas easy but will also pass on some useful knowledge to those who are interested in finding new sources of drugs from the plants. Local people provide information about economically important and very useful plants of the area which could otherwise be missed from taxonomists during their plant collection trips.

As the source of transfer of this knowledge is oral and not written in these areas so there is always a danger of losing any of the u seful traditional informations during communication. Another difficulty for the older generations is to pass their knowledge to younger generation due to generation gap. So it is really urgent to share the indigenous knowledge with every member of society for the benefit of mankind. It is necessary to preserve this knowledge in written form so that everybody can take benefit from it when and as required[6].

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