

Ethnomedicinal plants in Khanakul and adjoining areas of Hooghly, West Bengal and their medicinal uses

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Abstract

Present survey was done for revealing the traditional knowledge used by the local villagers and medicine men of Khanakul of Hooghly District, West Bengal. A total 37 number of medicinal plants belonging to 27 families are found which are used successfully by the traditional healers to treat various disease and disorders of common people. However further experimental study is required towards the formulation of herbal medicines and investigation of active constituents. For the preparation of ethnomedicine, the leaves were most frequently used for the treatment of diseases followed by roots and whole plant.

Keywords: Ethnobotany, medicinal plants, Hooghly district, survey

Introduction

The Ethnomedicinal plants are predominantly useful for their capacity to cure of many human diseases as well as maintaining health potential because those plants contain different natural products i.e. phytochemical constituents. Plants are naturally gifted with the synthesis of medicinal compounds such as tannins, phenolic acids, lignins, alkaloids, flavonoids, coumarines, terpenoids, glycosides etc. They are present in all plant tissues including leaves, stems, roots, rhizomes, flowers, fruits, and seeds, and even in pollen grains. Interestingly, natural compounds contain these “herbal cocktails”, can act in a synergistic manner within a human body and can provide unique therapeutic properties with minimal or no undesirable side effects. In recent years there has been a renaissance of interest in natural or herbal remedies worldwide, partly because of the realization that modern medicine is not capable of providing “cure-all” solutions against human diseases and that presence of unwanted side-effect is almost unavoidable.

Medical knowledge system in Traditional medicine (indigenous medicine) that develops generation to generation within various societies before the era of modern medicine. Practice known as traditional medicine includes herbal, ayurvedic siddha medicine, traditional African and Chinese, Islamic medicine etc. Traditional knowledge, an ethnobotanical information, plays an important role in scientific research, particularly when the literature and field work data have been properly evaluated (Awad *et al.*2008).

India is one of the 17 mega-biodiversity countries of the world having rich vegetation with a wide variety of plants with medicinal value in treating many diseases including infectious diseases, hypertension etc. that can save lives of many, particularly in the developing countries (Patrick, 2004). India with her 35000 plant species which are widely used for medicinal purposes (reported in second global Summit on medicinal and aromatic plants, October 25th to 29th, 2004, New Delhi) and 550 tribal communities belonging to 160 linguistic groups inhabited in varied geographic and climatic zones with diversified plant species, varied culture, rich traditional knowledge system and wisdom possess an ethnobotanical emporia (Pieroni, 2000). In case of the Asian and most of the African countries, up to 80 % of the population relies on traditional medicine for the primary health care. The using and curing of medicine is generally transmitted through a community, family and generation. Sometimes in a community one person is very much known about the medicine and he/she plays an important role for first aid to all of this community members. In India, various communities use over 7500 species which are utilized in primary health care by various tribes and medicine men (Uniyal *et al.*, 2006).

Except a few works, in West Bengal, no comprehensive account on villagers, medicine men, tribal knowledge system and wisdom on plant species, as the therapeutic agents in the form of prescriptions for various human ailments have appeared so far. Keeping this in view the present work has been done on the various ethnic people inhabiting the Khanakul-II block a unique phytogeographical region of Hooghly district, West Bengal.

In my research work, I collected all these information available on ethnomedicinal uses of plants by different medicine men and villagers for combating various ailments and this traditional knowledge pertaining to the use of some important but less medicinal plants for the greater benefit of mankind. Species were identified using standard Floras and books (Kirtikar and Borthakur, 1997; Vasudeva and Shampru, 1997). After collecting the data these were incorporated to my result section of this paper.

Materials and methods

A comprehensive interrogation and discussion was done with the villagers and local medicine men of the research area. I visited different villages of Khanakul-II Block and adjoining areas of Hooghly district and a list of 37 medicinal plants with their description and ethnomedicinal knowledge was prepared after the survey work. So, I discuss all my methods is described below.

Survey area

In Hooghly District one of the important Sub Division is Arambagh. Khanakul is 40 km. far from Arambagh City. It is 110 km. far from its state main city Kolkata. I have done my survey at Khanakul-II Block. About the experimental areas (Gram Panchayat): Khanakul-II community

development Block consists of rural areas of only with 8 Gram Panchayats. Actually I complete my survey throughout panchayat areas.

There are so many methods are applied at the time of surveying of one area. But that's are mainly statistical type and mainly applied in marketing, psychology, sociology research fields. But at the time of survey, I randomly visited with in my selected area and collect data from villagers and medicine men by field work. The list of the medicinal plants and detailed of their medicinal value are discussed on result portion.

Results

After comprehensive survey in the identified area of investigation, a list of medicinal plants was prepared. Scientific names, local names, vernacular plant uses, phenology, miscellaneous etc. are incorporated in the result section. The villages of the region are rich in Ethnomedicinal knowledge owing to their close affinity with surrounding plat cover. They obtained a variety of plant products from wild plants to fulfill their own needs as they are economically weaker sections of the society. In the village areas the rules and regulations by which the villagers and medicine men have been traditionally governed are now being gradually abolished by the young literate generations. However regarding the use of medicinal plants different villagers and medicine men of different regions within the identified area were consulted for consensus opinion as to the use of the plants. Thus, the uses of particular plants were confirmed from different resources. Again for confirmation of curing properties of a few particular medicinal plants, some persons suffering from different disease were administered/ applied plant parts and finally the remediation property was confirmed. An account of the medicinal plants including their relevant information on ethnomedicinal aspects is given here.

MAP: KHANAKUL-II BLOCK AND HOOGLHY DISTRICT

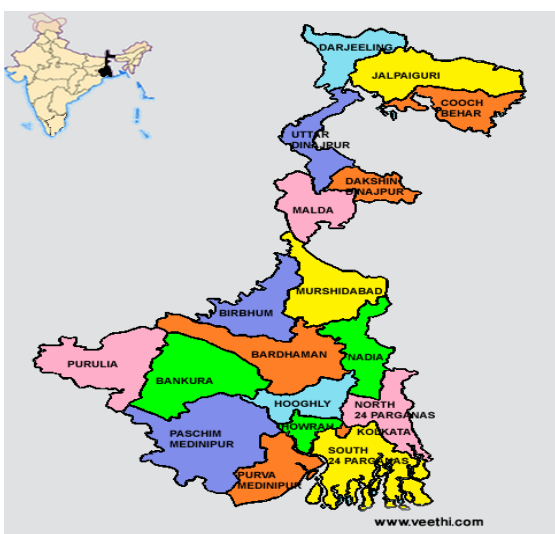


Figure: Khanakul-II Block in Hooghly District map (lower position)



Figure: Khanakul-II Block in Hooghly District map

Table: 1 List of wild edible plants of Khanakul-II Block, West Bengal

| Serial No. | Scientific Name | Local Name | Habit | Usable Part | Medicinal Uses |
|------------|--|----------------------------|---|-------------------------------|---|
| 1. | <i>Glinus oppositifolia</i> (L.) A.Dc. (Aizoaceae) | Gimme shak | Herb, prostrate, fewly ascended | Young stem and leaves | Used as vegetable, whole plant used to treat cold and cough and in bechic. |
| 2. | <i>Chenopodium album</i> (L.) (Chenopodiaceae) | Betho shak/ Bethua shak | Herb | Young twig and leaves | Used as vegetable, for curing dipsia. |
| 3. | <i>Polygonum plebeium</i> R.Br. (Polygonaceae) | Kezmi shak | Herb | Young stem and leaves | Used as vegetable for greater nutritional benefit. Leaf juice used as liver tonic |
| 4. | <i>Enhydra fluctuans</i> Lour. (Asteraceae) | Hingcha shak | Herb grown on stagnant water body and prostrate grow on marshy places | Young shoot and leaves | Used as vegetable, leaf used to prepare traditional Bengali dish. To cure pox and excoriation. |
| 5. | <i>Alternanthera sessilis</i> R.Br. (Amaranthaceae) | Sanche shak, mete shak | Prostrate herb | Young twigs, leaves and shoot | Used as vegetable, leaf juice bark juice used in jaundice, bark juice used in snake bite, fruit used in pox. Fresh root with rice endosperm mixed after eating it help to cure antric disease i.e. antidysentery property |
| 6. | <i>Hygrophila schuliil</i> (Buch-hum). MR et.S.M. Almeida(Acanthaceae) | Kulekh-ara | Herb, erect on marshy places. | Young shoot and leaves | Used as vegetable for weakness. Leaf juice in anaemia and hypertensive |
| 7. | <i>Ipomoea aquatic</i> Forsk (Convolvulaceae) | Jal kalmi | Aquatic herb, long prostrate branch | Young twig and leaves | Used as vegetable for stomachic. Stem juice used in insect bite. |
| 8. | <i>Portulaca oleracea</i> L. (Portulacaceae) | Nuna shak | Herb | Young shoot and leaves | Used as vegetable, whole plant used in asthma, dysentery, scurvy. |
| 9. | <i>Amaranthus viridis</i> L. (Amaranthaceae) | Ban notey | Herb | Young twig and leaves | Used as vegetable, to cure heartburn |
| 10. | <i>Amaranthus spinosus</i> L. (Amaranthaceae) | Kata notey | Herb | Young twig, leaves and roots | Used as vegetable, root used in piles and diarrhoea |
| 11. | <i>Centella asiatica</i> L. (Apiaceae) | Thankuni | Terrestrial, prostrate herb, faintly aromatic, rooting at node | leaf | Leaf is directly eaten and leaf juice used in diarrhea and stomachic, leprosy for nerves and blood, as cardiotonic. |
| 12. | <i>Murraya koenigii</i> L. Spreng (Rutaceae) | Kai pata, curry pata | Terrestrial shrub | Leaf, root | Leaf part used to prepare curry for flavors. Young leaf used in dysentery and vomiting. Root is slightly purgative, stimulant, to cure eruption and bites of poisonous animals. |
| 13. | <i>Commelina benghalensis</i> L. (Commelinaceae) | Koros shak, kansira | Herb, prostrate few are ascended | Young shoot and leaves | Used as vegetable, stem juice used in insect bite. Leaf juice used in blister problem of eye. |
| 14. | <i>Colocasia esculenta</i> Schott (Araceae) | Kachu | Herb | Corm, leaf | As vegetable, leaf used in scorpion bite and piles. |
| 15. | <i>Syzygium cumini</i> L. (Myrtaceae) | Kada jam | Tree | Fruit and seed | Ripe fruit is edible. Seed dust used in diabetes. |
| 16. | <i>Paederia foetida</i> L. (Rubiaceae) | Gandal pata, gandha pata | Climber | Leaves | Used as vegetable, cure in dysentery, fever, diarrhea. |

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|-----|---|------------------------------------|---|-------------------------------------|--|
| 17. | <i>Boerhaavia diffusa</i> L. (Nyctaginaceae) | Kum kum shak, Punornaba | Herb, prostrate few are ascended, glabrous, diffusely branched. | Whole plant, root | Used as vegetable, root used in diuretic gonorrhea and jaundice, stomachic, antipyretic, cardiotonic |
| 18. | <i>Citrulus colocynthis</i> Schrad (Cucurbitaceae) | Ban kakur | climber | Fruit and root | Fruit as vegetable, ripe fruit after drying is use to cure fever, rheumatism, also use to build up the body immune system. Root and fruit to snake poison. |
| 19. | <i>Marsilea quadrifolia</i> L. (Marsileaceae) | Susni shak | Herb, aquatic , prostrate | leaves | As vegetable. Juice used as tonic for sleeping sickness and in skin disease |
| 20. | <i>Ipomoea obscura</i> (Convolvulaceae) | Danga kalmi | Herb | leaves | Used as vegetable, leaf juice used as antidote against insect bite |
| 21. | <i>Bacopa monniera</i> L. Fennel (Scrophulariaceae) | Bramhi shak | Herb, aquatic, on marshy places creeping glabrous, succulent | Young twig and leaves | Used as vegetable, leaf juice used to improve brain memory. Leaf used to laxative and carminative, for rheumatism, as cardiac tonic. |
| 22. | <i>Xanthium strumarium</i> (L.) (Asteraceae) | Okra phal , jamai laddu | Herb | Whole plant, young twig | Young twig use as vegetable, whole plant used in chronic malaria, ulcer, syphilitic and piles. |
| 23. | <i>Passiflora foetida</i> (L.) (Passifloraceae) | Jali phal , jhumkolata | climber | Whole plant, fruit | Ripe fruit are edible, whole plant used as diuretic and liver tonic. |
| 24. | <i>Nymphaea alba</i> (L.) (Nymphaeaceae) | Sada saluk | Herb, aquatic with floated leaf | Leaf, petiole, flower, seed. | Leaf petiole as vegetable, flower used in vomiting, cardiac tonic and hemorrhage. Seed used in diabetes. Leaf used bleeding problem. |
| 25. | <i>Stephania glandulifera</i> (Meniaceae) | Nimoko | Climber. | Stem ,rhizome | Stem has antimicrobial property, cure to postnatal abdominal pain, stomach disorder. |
| 26. | <i>Adhatoda vasica</i> (Acanthaceae) | Basak | Herb, terrestrial | Whole plant ,mainly leaf part | Leaf decoction used in cough and cold, bronchitis, scabis. |
| 27. | <i>Aegle marmelos</i> (Rutaceae) | Bael | Tree | Fruit and leave | Gastric problem, diarrhea and dysentery, respiratory disorder, leaf extract used for stomachic as cooling agent. |
| 28. | <i>Alstonia scholaris</i> (Apocynaceae) | Chatim | Tree | Leaves and bark | Jaundice diarrhea, dysentery. |
| 29. | <i>Amaranthus tricolor</i> (Amaranthaceae) | Lal shak, lal notey | Herb | Whole plant | Young twig use as vegetable, blood purifier anemia. |
| 30. | <i>Artemisia vulgaris</i> (Asteraceae) | Nagdamoni, Nagdana, Titapati | Herb | Leaves and roots | Ring warm, blister, pimples, headache |
| 31. | <i>Calotropis procera</i> (Asclepiadaceae) | Sada akondo | Under shrub | Leaves | Acidity, flatulence, asthma, dental problem, skin burn, skin scratching. |
| 32. | <i>Cannabis sativa</i> (Cannabinaceae) | Vang, ganja | Herb | Small twig with leaves | Any type of pain, nausea and vomiting, as hallucinogenic drug at high doses. |
| 33. | <i>Citrus aurantifolia</i> (Rutaceae) | Kagoji labu | Under shrub | Fruits, seeds and leaves | Digestive problem, cholera, warm, skin burn. |
| 34. | <i>Curcuma longa</i> (Zingiberaceae) | Halud | Herb | rhizome | Antimicrobial activity, jaundice, wounds. |
| 35. | <i>Tagetes erecta</i> (Asteraceae) | Gada | Terrestrial herb | Leaves, flower | Cuts and wounds, burn, insect bite. |
| 36. | <i>Solanum nigrum</i> (Solanaceae) | Kakma-chi | Herb | Fruit and seeds | Fever, cough, cold, acidity. |
| 37. | <i>Vitex negunda</i> (Verbanacea) | Nishinda | Tree | Leaves and bark | Jaundice diarrhea, dysentery. |

Discussion

Since prehistoric time peoples learnt the technique for amelioration of various kinds of ailments from natural sources which are still considered as the potential agents for remediation of diseases.

In the present investigation plants were considered as one of the important natural resources which are being used for a long period by practicing and achieving success using plant parts for curing diseases.

In the present investigation attempts were made to explore and identify a small scale area in Khanakul-II Block for deciphering traditional knowledge on plant based medicinal information from different villagers and medicine men. Enormous knowledge was gathered by them from their ancestors and they keep applying the same over generations for remediation of different ailments.

In this study after a thorough interaction with the target villagers and medicine men a comprehensive idea on the identification of the medicinal plants, specific harvesting time of plants, specific plant parts used, different ailments curing property, mode of preparation of medicine etc. was gathered. As many as valuable information on 37 medicinal plants under critically recorded in this work.

Now it is a challenge to the future workers in this field of research to come forward and contribute information on the ethnomedicinal aspects of plants which still remain to be explored. Future researchers in this field of study should pay serious attempt to unveil the treasure of traditional knowledge of medicinal plant by extensive exploration in remote areas in our village and adjoining areas. Subsequently this unrecorded or less recorded information should be published for onward transmission of such knowledge to phytochemists, molecular biologists, genetics or other workers continuing their research for analysis of the bioactive compound to understand the actual mechanism of action of the plant constituents of metabolism etc. for rendering the medicinal property.

Conclusion

It can be concluded from the survey work on ethnomedicinal plants growing in Khanakul and adjoining areas of Hooghly District, West Bengal that out of the 37 ethnomedicinal plants belonging to 27 families identified, 10 plants are very important and potentially used by the herbalist for amelioration of various ailments. These include *Enhydra fluctuans*, *Hygrophila schulii*, *Centella asiatica*, *Paederia foetida*, *Marsilea quadrifolia*, *Bacopa monniera*, *Stephania glandulifera*, *Adhatoda vasica*, *Aegle marmelos*, *Curcuma longa*. Among the uses the major plant wise use is as follows: *Enhydra fluctuans*: Used as vegetable, leaf used to prepare traditional Bengali dish. To cure pox and excoriation, *Hygrophila schulii*: Used as vegetable for weakness. Leaf juice in anaemia and hypertensive, *Centella asiatica*: Leaf is directly eaten and leaf juice used in diarrhea and stomachic, leprosy for nerves and blood, as cardiogenic, *Paederia foetida*: Used as vegetable, cure in dysentery,

fever, diarrhea, *Marsilea quadrifolia*: As vegetable. Juice used as tonic for sleeping sickness and in skin disease, *Bacopa monnieri*: Used as vegetable, leaf juice used to improve brain memory. Leaf used to laxative and carminative, for rheumatism, as cardiac tonic., *Stephania glandulifera*: Stem has antimicrobial property, cure to postnatal abdominal pain, stomach disorder, *Adhatoda vasica*: Leaf decoction used in cough and cold, bronchitis, scabies., *Aegle marmelos*: Gastric problem, diarrhea and dysentery, respiratory disorder, leaf extract used for stomachic as cooling agent., *Curcuma longa*: Antimicrobial activity, jaundice, wounds .Again the specific use of each plant was corroborated and confirmed from consultation of with a number of other medicine men of different locality. However attempt can be made in further study for using the combination of the identified potential plant species and or other some stimulating like clove, honey and other anupans or other medicinal plant species for exerting synergistic action include extracts. And this aspect of research is very important for enhancing the combinational efficacy of the crude drugs.

To give clear insight of the information of the medicinal plant, the data were recorded from literature, local people and personal study in terms of their family, local name(s), habitat, habit, flowering time, usable part and medicinal uses and other miscellaneous special information. However, further research may be under taken future for identifying the specific bioactive compounds of medicinal plants, which are responsible for inducing amelioration of the disease in human being.

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