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M. Sala Uddin
Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh.

J. J. Chakma
Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh.

K. M. M. Alam
Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh.

S. B. Uddin
Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh.

Correspondence:
M. Sala Uddin
Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh.

Ethno-medico studies on the uses of plant in the Chakma community of Khagrachari district, Bangladesh

M. Sala Uddin, J. J. Chakma, K. M. M. Alam and S. B. Uddin

Abstract

Traditional folklore studies have obtained a substantial momentum in the recent past, throughout the case of the world including Bangladesh. A survey work was done in Khagrachari district in the Chakma community and studied medicinal plants that are used by the Chakma community. All the plants were listed along with their scientific name, chakma name, local name, habit, family, used parts and the ethno-medical uses. A total of 50 plant species in 47 genera under 37 families have been identified which are used to treat 29 different ailments by the traditional healers. Apocynaceae is the most frequently used family in context to the number of species used by the Chakma Community. The other important families used for medicinal plants are Caesalpiniaceae, Amaranthaceae, Rutaceae, Araceae, Zingiberaceae, Asteraceae, Liliaceae and Combretaceae respectively. Mostly leaves are used for the formulation of folk medicine. An attempt has been made to document the ethnophy to therapeutics and the folk claims of the plant parts used along with their medicinal uses.

Keywords: Ethnomedicinal plants, Khagrachari district, Chakma community, Bangladesh.

1. Introduction

Plants have been the basis of many traditional medicine systems throughout the world for thousands of years and continue to provide mankind with new remedies. The tribal people of Khagrachari are still dependent on traditional medicines for their health care treatment of disease. These have been developed by years of experience of many generations assimilating in the course of time, fragments of Ayurvedic, Unani and Tibetan System of Medicine. They may thus be referred to as "Folk medicine" [1]. Among the potential uses of plants, native folk medicine has high priority. The topography of Khagrachari district is featured by a mass of the hill, ravine and differ originally covered with dense bamboo trees and erected jungle but now bare in many places. The mountains are steep and ridge. The hills are the districts run from south in a north-westerly direction. There are three major valleys of the southward flowing rivers, the Chengi, the Maini and the Kasalong. Khagrachari district is situated approximately between 22°38' and 23°44' northern latitude and between 91°44' and 92°11' eastern longitude. The district is with an area of 2699.5 sq. km. [2]. Annual average temperature maximum 34.6° c, minimum 13° c; annual rainfall is 2032-3810 mm and 80% of which occurs during the months of May to September [3]. The district consists of 8 upazillas which are Dighinala, Khagrachari Sadar, Laksmichhari, Mohalchhari, Manikchari, Matiranga, Panchari and Ramgarh [4]. Total population is 518463; out of them Chakma is 28.17% [5]. There are four tribal communities have been found to be live here viz. the Chakma, the Tripura, the Marma and the Santal. Here the ethnic peoples live side by side with the Bengali people. Some tribal villages also are available. Publications on the Traditional/ Ethnomedicinal knowledge of use of biological resources by local and tribal people are meager. Although a few sporadic publications on folk formularies and tribal herbal medicines have been published by several workers. Several works done by on Ethnobotany [6, 7, 8]. Chemical analysis of some medicinal plant has done [10, 11, 12, 13, 14, 16, 17, 18, 19]. All of them basically worked on the traditional plant use of tribal community as well as the Bengali people and medicinal plant. Considering the above facts, the present study was undertaken to assess the documentation of the ethno-medicinal use of plants in the Chakma community, Khagrachari district of Bangladesh.

2. Materials and Methods

During the course of exploration and collection different villages of forested area were

surveyed and ethnomedicinal information's were collected by conducting interviews of local traditional healers who prescribe their herbal formulations and various ethnobotanical aspects i.e. utilization, domestication, conservations and phyto worships practices through repeated field trips. The documentation, data sheet has been prepared based on Alcorn 1984 [20], Jain 1989 [21], Martin 1995 [22] and Cotton 1997 [23]. The collected plants specimens were preserved in the Chittagong University Herbarium (CTGUH) using standard techniques. The specimens have been identified consulting with the experts through studying several available literatures [24, 25, 26, 27]. The recognized families in this work have been arranged alphabetically according to Cronquist, 1982 [28]. In order to find out the current nomenclature the different taxonomic literatures have been consulted series of flora of Bangladesh [29], and a book [30].

3. Results and Discussion

Plant species belonging to 47 genera and 50 species in 37 families are being used by most of the local people for the treatment of common diseases. The dose is prepared by using juice, leaf, bark extracts and other parts of the plant. Scientific names arranged alphabetically, followed by chakma names, local names, habit, family, plant part and medicinal uses are listed in Table 1. From earlier times people made use of plants for their basic needs, medicare and livelihood. Some plants used by people are cultivated while others grow in wild conditions. The tribal's depend predominantly on plants for food, clothing, medicine, oil, agricultural implements, art and crafts and for other requirements. Plant species were also used to prevent abortion, achieve easy delivery, gastric and respiratory problems, fever, antidote for snake and scorpion bites, sunstroke arthritis, hydroceal, toothache, cough, dysentery, Jaundice and sexual power.

The Majority of plant species belong to families Apocynaceae, Caesalpinaceae, Amaranthaceae, Rutaceae, Araceae, Zingiberaceae, Asteraceae, Liliaceae and Combretaceae. Among these 50 plant species belong to 41 dicots and 09 to monocots. According to life form (plant habit) the numbers of plant species have been used by the chakma community are 30% herbs, 24% shrubs, 40% trees and 6% climbers respectively (Figure 1).

The majority utilized plant parts for the preparation of folk medicine is leaf which is 33.2%, then fruit 16.94%, root 10.16%, stem 8.47%, seed 8.47%, bark 6.77%, rhizome 3.38%, bulb 3.38%, latex 3.38% and whole plant 1.69% respectively (Figure 2). The study showed that bulb, rhizome, root and the whole plant have been used in formulation of folk medicine is 16.94% for the cure of diseases. These are the unfriendly way of using plants because it needs to eradicate or abolish the whole plant. Moreover the aerial parts of the plant (leaf, flower, fruit, and seed) can be used without eradicating the plant. For this, it is an outstanding way to conserve them.

The studied ethno-medicinal plant species have been used to treat various diseases which are illustrated in Figure 3. The various diseases such as Cough, Diarrhoea, Dysentery, Jaundice, Skin diseases, Boils, Gastritis, Toothache, Abortion, Fever, Abdominal pain, Bone fracture, High blood pressure and Ring worm were found to be 10.81%, 10.81%, 8.10%, 8.10%, 8.10%, 5.40%, 5.40%, 5.40%, 4.05%, 4.05%, 2.70%, 2.70%, 2.70%, 2.70%, 17.56% plant species used respectively whereas Asthma, Antiseptic, Bee and ant bite, Bleeding, Cancer, Chicken fox, Dandruff, Hair falling, Headache, Low pressure, Mumps, Snake bite and weakness each one was found to be 1.35% plant used.

The most commonly methods of folk-medicine are juice, extract, paste, pills, etc. Both external and internal methods of practice of folk-medicine have been recommended. The internal use of folk-medicine is 67.85% whereas the external use is 32.14%. The time of taking, dose and duration of practice of these folk-medicines are varied from traditional healers to healers and on the basis of disease. The establishment of community clinic is in many rural areas and that may change gradually the existing pattern of indigenous knowledge based system of healthcare. Recently, they are losing their precious heritage of plant use indigenous knowledge because of, industrialization and urbanization. At present younger generation lost the interest to continue their parental tradition because it does not provide them proper financial support for their livelihood [31]. If these conditions continue; their traditional plant use knowledge will be loose rapidly. Now, it is a burning necessity to document their ethno-medicinal use information to protect them from disappearing. This information can be the source and help the modern researchers in the discovery of new drugs [32].

Table 1: List of plants used in folk medicine by Chakma communities.

Scientific name	Chakma name	Local Name/Habit	Family	Parts Used	Ethno-medicinal Use
A. Dicotyledons					
<i>Achyranthes aspera</i> L.	Uvalayara	Apang/ Herb	Amaranthaceae	Leaf	Leaf extract is taken for treat Cough, fever
<i>Adhatoda vasica</i> Roxb.	Basak pada	Basak/ Shrub	Acanthaceae	Leaf	Leaf extract use to treat Cough
<i>Aegle marmelos</i> (L.) Corr.	Belgulu	Bel/ Tree	Rutaceae	Fruit	Fruits are directly taken to treat Diarrhoea, dysentery
<i>Alstonia scholaris</i> (L.) R. Br.	Jarbo sesna	Chatim/Tree	Apocynaceae	Leaf	To promote producing milk, when mother sit on the leaf
<i>Amaranthus spinosus</i> L.	Hadamarej	Katanotey/ Herb	Amaranthaceae	Root	Juice prepared from root is taken to treat Pregnancy problem
<i>Artocarpus heterophyllus</i> Lam.	Hattol	Kathal/ Tree	Moraceae	Latex	Latex is used to treat Skin disease
<i>Azadiracta indica</i> A. Juss.	Neem gach	Neem/ Tree	Meliaceae	Leaf	Leaf used to treat Skin disease and stem used for Toothache
<i>Cardiospermum halicacabum</i> L.	Hedaboksa shak	Lataphatkari/ Climber	Sapindaceae	Whole Plant	Hot water extract of the plant is taken to treat Chiken-fox. Leaf is taken for fever and root is used to treat mumps

<i>Cajanus cajan</i> (L.)	Dumursumi	Arhar/ Shrub	Fabaceae	Leaf	Paste prepared from leaf is taken in Jaundice, Cough and gastritis. Seeds are used to treat Snake bite
<i>Carica papaya</i> L.	Hogoya	Pepe/ Tree	Caricaceae	Latex	Latex of green fruit is used to induce abortion
<i>Cassia alata</i> L.	Dattalong pada	Dadmardan/ Shrub	Caesalpiniaceae	Leaf	Paste of leaf is applied in eczema and ringworm
<i>Cassia sophera</i> L.	Ijji gach	Kalkasunde/ Shrub	Caesalpiniaceae	Seed	Paste of seed is applied in eczema and ringworm
<i>Catharanthus roseus</i> L. G. Don	Chokful	Nayantara/ Herb	Apocynaceae	Leaf	Leaf juice is taken to treat Gastritis, Abdominal pain
<i>Centella asiatica</i> (L.) Urban	Menmini	Thankuni/ Herb	Apiaceae	Leaf	Leaf juice is taken in Digestive, Dysentery, Gastritis
<i>Cissus quadrangularis</i> L.	Harvangadaru	Harjora/ Climber	Vitaceae	Leaf	Paste of leaf is used to plaster the fractured area. Stem is used to treat Cancer
<i>Citrus lemon</i> (Christ.) SW.	Hagugi	Kagogi lebu/ Tree	Rutaceae	Fruit	Juice from fruit is taken to treat Jaundice
<i>Dillenia indica</i> L.	Ulugach	Chalta/ Tree	Dilleniaceae	Flower	Flower prepared pills and taken in Weakness, Low pressure after delivery
<i>Eupatorium odoratum</i> L.	Mugujuher	Assam lata/ Shrub	Asteraceae	Leaf	Crushed leafs are applied in Cuts and wounds
<i>Ficus hispida</i> L.f.	Dumur gulu	Dumur/ Tree	Moraceae	Fruit	Fruits are directly taken in Dysentery and Diarrhoea
<i>Gmelina arborea</i> L.	Gamari gach	Gamari/Tree	Verbenaceae	Seed	Paste of seeds are spread affected area to treat Itching
<i>Grewia microcosm</i> L.	Assarbiji gach	Patka/ Tree	Tiliaceae	Leaf	Juice from leaf is taken to treat Jaundice
<i>Hibiscus rosa-sinensis</i> L.	Rakta jaba	Jaba/ Shrub	Malvaceae	Leaf	Leaf and flowers paste are used in boils
<i>Holarrhena pubescence</i> (Buch. Ham.) Wall.	Huruk gach	Kurchi/ Tree	Apocynaceae	Bark	Juice from bark is taken with sugar for Jaundice
<i>Hyptis suaveolens</i> (L.) Poit	Chongadana gach	Tokma/ Shrub	Lamiaceae	Root	Paste of root is taken with sugar for the treatment of High blood pressure
<i>Lawsonia inermis</i> L.	Minti pada	Mehedi/ Shrub	Lythraceae	Leaf	Paste from leafs is used for Hair Falling and to remove dandruff
<i>Mangifera indica</i> L.	Amm gach	Am/ Tree	Anacardiaceae	Bark	Juice prepared from bark is taken with sugar to treat bleeding piles
<i>Melastoma melabatricum</i> L.	Maga pittungulu	Datranga/ Shrub	Melastomaceae	Leaf	Paste prepared from leafs are useful to treat toothach
<i>Mimosa pudica</i> L.	Lajuriher	Lajjaboti/ Herb	Mimosaceae	Fruit	Fruits are used for Dysentery, Diarrhoea, emetic. Stem extract are used to treat Bone fracture
<i>Moringa oleifera</i> Lamk.	Sesna shak	Sajina/ Tree	Moringaceae	Bark	Juice prepared from bark is taken with sugar for Jaundice
<i>Ocimum sanctum</i> L.	Tulusi pada	Tulsi/ Herb	Lamiaceae	Leaf	Extract of leaf is used to treat Cough
<i>Oroxylum indicum</i> (L.) Kurz	Honagulu	Khona/ Tree	Bignoniaceae	Bark	Juice prepared from bark is mixed with sugar and taken to treat Jaundice
<i>Phyllanthus emblica</i> L.	Hadamala	Amloki/ Tree	Euphorbiaceae	Fruit	Fruits are used for Dysentery and Diarrhoea
<i>Physalis micrantha</i> Link.	Pittungulu	Phutka/ Herb	Solanaceae	Root	Root extract mixed with sugar taken to treat Dysentery
<i>Piper betel</i> L.	Pan	Pan/ Climber	Piperaceae	Leaf	Crushed leafs are applied in wounded area and toothache
<i>Psidium guajava</i> (L.)	Guyam	Piyara/Tree	Myrtaceae	Leaf	Young leaf is taken directly in Diarrhoea
<i>Spilanthes acmella</i> L.	Osonshak	Marhatitiga/ Herb	Asteraceae	Flower	Crushed flower is applied to treat Toothache
<i>Tabernaemontana divaricata</i> (L.) R. Br.	Hastadangar	Tagar/ Shrub	Apocynaceae	Root	Extract prepared from root is taken with sugar to treat the Children in fever
<i>Tamarindus indica</i> L.	Tedoy	Tetul/ Tree	Caesalpiniaceae	Fruit	Ripe fruit are directly taken for Headache, High pressure
<i>Terminalia chebula</i> Retz.	Oithal	Haritaki/ Tree	Combretaceae	Fruit	Ripen/ green fruits are taken directly to treat Gastritis and Abdominal pain
<i>Terminalia belerica</i> (Gaert) Roxb.	Boragulu	Bahera/Tree	Combretaceae	Fruit	Fruit is taken directly to treat cough and Diarrhoea
<i>Thevetia peruviana</i> (Pres.) Merr.	Goiphul	Kolkipful/ Shrub	Apocynaceae	Seed	Latex of seeds are used to treat Boils

B. Monocotyledons					
<i>Allium cepa</i> L.	Peaj	Piaj/ Herb	Liliaceae	Bulb	Juice prepared from bulb is taken to Cough, asthma
<i>Allium sativum</i> L.	Ron	Rasun/Herb	Liliaceae	Bulb	Bulb is directly taken to treat Boils, gastritis
<i>Ananas sativus</i> Schult. f.	Anas	Anaras/ Shrub	Bromeliaceae	Fruit	Unripe fruit is directly taken to treat Abortifacient
<i>Areca catechu</i> L.	Subari	Supari/ Tree	Arecaceae	Fruit	Fruit is directly taken to treat Cough
<i>Colocasia esculenta</i> (L.) Schott	Araceae	Kachu/ Herb	Araceae	latex	Latex of Stem is used to treat Bee or ant bite
<i>Crinum asiaticum</i> (L.)	Koba ron	Sukdarshan/ Herb	Amaryllidaceae	Root	Paste prepared from root is applied in Boils
<i>Curcuma longa</i> L.	Olod	Halud/Herb	Zingiberaceae	Rhizome	Paste prepared is taken in Cough and treated on head of frightened child
<i>Musa sapientum</i> L.	Hattuli hala	Bangla kala/ Herb	Musaceae	Fruit	Fruits boiled in hot water is taken to treat Diarrhoea
<i>Zingiber officinale</i> Roxc.	Ada	Ada/ Herb	Zingiberaceae	Rhizome	Juice prepared from Zinger is taken to treat Diarrhoea and Cough

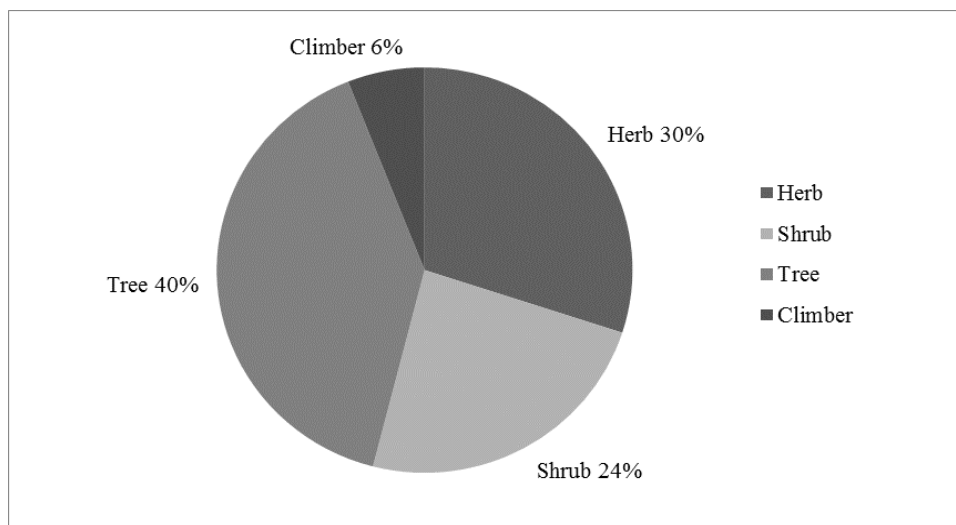


Fig 1: Percentage of life form (Plant habit) used by the Chakma community.

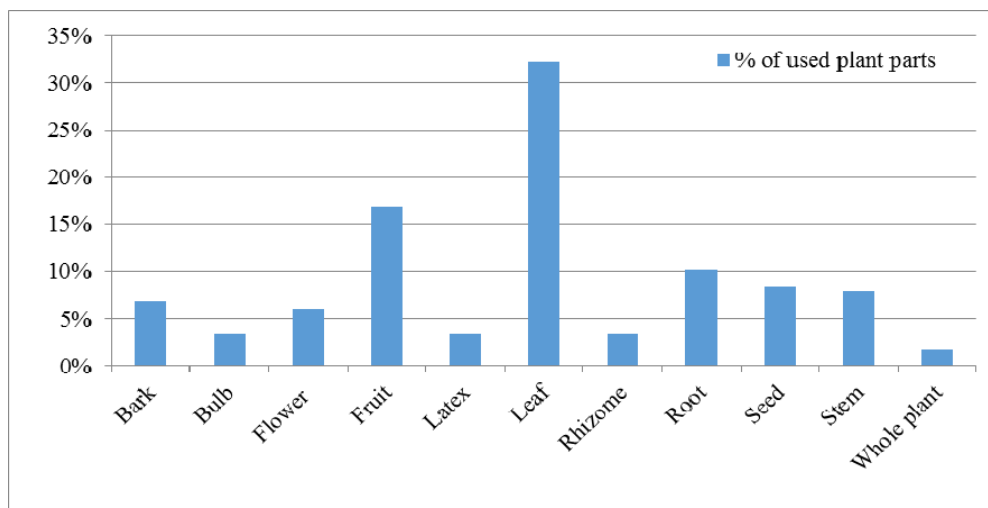


Fig 2: Percent of used plant parts as folk medicine in the Chakma community of Khagrachari.

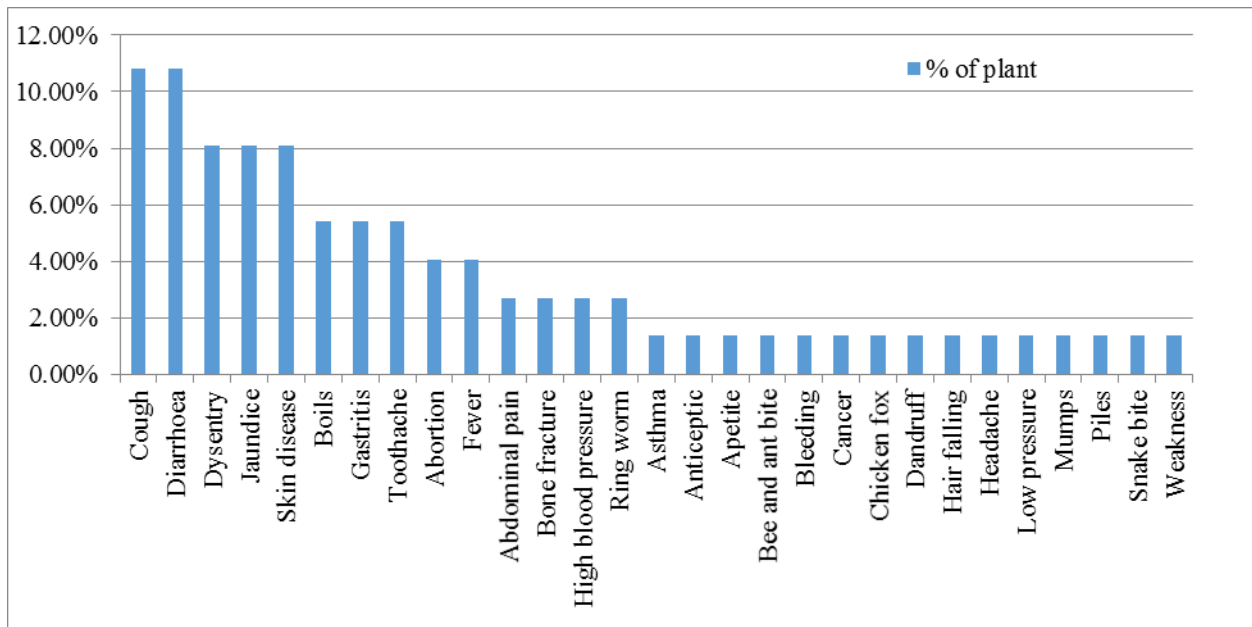


Fig 3: Percentage of plant species used for various diseases in the Chakma community.

4. Conclusion

The present study adds to the earlier knowledge regarding the use of plants in the treatment of common diseases. The increasing demand of medicinal flora has resulted in the rapid dwindling of these natural resources. There is an urgent need of systematic conservation and sustainable production of medicinal plants involving local communities, researchers and departmental field group with stronger linkage for collaborative work to meet future demand on a sustained manner.

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