Ethnobotanical Survey at Kolaroa region of Satkhira District of Bangladesh

(This report presented in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy)

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APPROVAL

This Project,Ethnobotanical Survey at kolaroa region of Satkhira District of Bangladeshsubmitted by Sarder Istiaque Ahmed to the Department of Pharmacy, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to it style and contents.

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Acknowledgement

All praises and gratitude to almighty Allah, the most beneficent and the merciful who manages each and everything soundly and enables me to complete my project work.

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Dedication

My Parents And All Freedom Fighter of Bangladesh

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Abstract

The population of poorer section of the population resides mostly in the rural areas and the urban slums. The rural population and population in small towns in addition suffer from proper access to health-care facilities and are not always in a position to afford the costs of allopathic treatment. They therefore rely on folk medicinal practitioners otherwise known as Kavirajes for treatment of their various ailments. The Kavirajes rely on administration of medicinal plants either orally or topically for treatment of diseases. Each Kaviraj has his unique repertoire of medicinal plants, which is closely guarded and usually passed onto an immediate member of the family in the successive generation.[1] The objective of the present study was to conduct a survey on medicinal plant usage among selected Kavirajes of Kolaroa Thana in Satkhira district, Bangladesh. Interviews were conducted with the help of a semistructured questionnaire and the guided field-walk method. Information was obtained as to the local name of plants, parts used, formulations and dosages. It was found that the interviewed Kavirajes used various plants in their treatment of various ailments.A total of 29 plants distributed into 21 families I had found to be used by the 3 Kavirajes interviewed for the treatment of various ailments like cough, pain, cholera, dysentery, fever, flux,erectile dysfunction, leucorrhea, skin disease, ophthalmia, opacity of cornea, pox, tuberculosis, hypertension, inflammation, diarrhea, dysmenorrheal, paralysis, gonorrhea, ulcer, asthma.

Chapter One

Introduction

1.1 Ethnobotany

Ethnobotany is the study of how people of a particular culture and region make of use of indigenous plants. Ethnobotanists explore how plants are used for such things as food, shelter, medicine, clothing, hunting, and religious ceremonies.Ethnobotany has its roots in botany, the study of plants. Botany, in turn, originated in part from an interest in finding plants to help fight illness. In fact, medicine and botany have always had close ties. Many of today's drugs have been derived from plant sources. Pharmacognosy is the study of medicinal and toxic products from natural plant sources. At one time, pharmacologists researching drugs were required to understand the natural plant world, and physicians were schooled in plant-derived remedies. However, as modern medicine and drug research advanced, chemically-synthesized drugs replaced plants as the source of most medicinal agents in industrialized countries. Although research in plant sources continued and plants were still used as the basis for some drug development, the dominant interest (and resulting research funding) shifted to the laboratory.

The I990's has seen a growing shift in interest once more; plants are reemerging as a significant source of new Pharmaceuticals. Industries are now interested in exploring parts of the world where plant medicine remains the predominant form of dealing with illness. South America, for example, has an extraordinary diversity of plant species and has been regarded as a treasure grove of medicinal plants.

To discover the practical potential of native plants, an ethnobotanist must be knowledgeable not only in the study of plants themselves, but must understand and be sensitive to the dynamics of how cultures work. Ethnobotanists have helped us to understand the frightening implications which loss of the rain forests would bring not only in terms of consequent loss of knowledge about tropical plants, but the consequent damage brought on by the loss of native cultures in their entirety, as well as the damage to the earth's ecological health.

By necessity, ethnobotany is multidisciplinary. This multidisciplinary approach gives ethnobotanists more Insight into the management of tropical forest reserves in a period of tremendous environmental stress. Unfortunately, due to human factors which have influenced the ecological balance of these delicate ecosystems, we are presently faced with the possibility of losing our rain forests.

Preparation For The Expedition:

The first step is collecting detailed knowledge about the local and indigenous people. Researchers prepare a regional study on the epidemiology, traditional medicine, culture and ecology of the people and their environment. In order to prioritize plant collections, a number of international databases are searched to obtain all of the relevant ethnomedical, biological, and chemical information on the plants known to be used in that region. Data is also gathered from remote area hospitals and treatment programs working with local and native peoples. This information is synthesized and integrated into the field research program, the next step of the process.

Ethnobotanical Drug Development:

Once the plants have arrived at the company's research site, processing the plants for medicinal purposes begins. The plants are tagged with the information from the field study. The plants are processed and tested in studies completed by ethnopharmacologists, using state of the art laboratory equipment (which may include High Pressure Liquid Chromatography studies and in vivo transgenic animal studies). The objective is to screen the plants metabolites to determine how relevant they are to the therapeutic areas of interest. The most promising initial plant compounds are fractionated to obtain pure samples in milligram amounts. These natural pure compounds are compared to the best available therapeutics by in vitro testing. If the bioassay is successful, the compound is structurally characterized and is subject to a confirmatory biological test.

Promising compounds are scaled up to provide gram quantities for animal testing to determine safety and efficacy. Pharmacologists with backgrounds in metabolism, pharmacokinetics, medicinal chemistry and formulation design experiments to determine whether the selected compounds have activity. After this testing is completed, the samples are compared with the best available marketed therapeutics. The scale up process occurs again and hundreds of grams of selected compounds are provided for further studies which will, it is hoped, eventually lead to an effective, marketable drug suitable for human consumption. This new product is the reward for all the time and effort of many individuals.[2]

1.2Study Area: Mystudy area is Narayanpur village of Kolaroa thana Of Satkhira district.

1.3 Backgrond history of Satkhira district

The ancient name of Satkhira was Satgharia (noted zamindar Prannath Roy Chowdhury established Satgharia). During the permanent settlement Bishnuram Chakravorti, an official of Raja Krishnachandra of Nadia, purchased Buran Pargana by auction in 1772 and settled at Satgharia village. Prananath Roy Chowdhury, son of Bishnuran Chakravorti, made considerable development in the area. In 1781, most of the areas of Jessore, Faridpur and Khulna were brought under a single administration. But later on while peasant movement spread over the region against the oppressions of indigo planters and the local zamindars, the British established a subdivision at Satgharia under Jessore district to control indigo revolt and to strengthen local administration. By this time 'Satgharia' turned into 'Satkhira' in the records of the British. Satkhira region was a part of the ancient Vanga janapada. Once it was the capital of the state of

bara-bhuiyan of Bengal. Peasant movement, against the east india company and oppressions of the local zamindars, spread over the district in 1801 under the leadership of Titumir. Besides, indigo resistance movement and wahabi movement spread over the district during 1854 to 1860.

Bordered By:

Satkhira district is located in the south-west of Bangladesh along the border with the Indian state of West Bengal in the west. To its north lies the district of Jessore, to its east Khulna and to its south the Sundarbans forest and beyond that the Bay of Bengal.

River: Satkhira is criss-crossed by many rivers, the most important of which are the Morichap, Kolpotua, Betna, Raimongo, Horinbhanga, Kalindi and the Icchamati. This last river separates Satkhira from the West Bengali districts of the North and South 24 Parganas.

Population: The district's population is about 1.8 million with nearly as many women as men. Muslims make up just over 78% of the population with Hindus making up more than 21%.

Subdivisions:

1. Satkhira Sadar Upazila
2. Assasuni Upazila
3. Debhata Upazila
4. Tala Upazila
5. Kalaroa Upazila
6. Kaliganj Upazila
7. Shyamnagar Upazila

Demography:

- The total population of Satkhira District 20,79,884
- Men: 10,04,415
- Female:9,45,0234
- Male to female ratio: 100: 106
- Population density:539 people (per square kilometer)
- Which 78.08% are Muslim, 21.45% are Hindu, 0.28% are Christian, 0.01% are Buddhist and 0.18% are other religions.
- The annual average maximum temperature reaches 35.5 °C (95.9 °F); and minimum temperature is 12.5 °C (54.5 °F). The annual rainfall is 1710 mm (67 in).

Economy: Most of the peoples of southern part of Satkhira depend on pisciculture, locally called *gher*. Main fruits are aam (mango), jaam (blackberry), kathal (jackfruit), kola (banana), pepe (papaya), lichoo (litchi), naarikel (coconut) and peyara (guava). Farms are 86 dairies, 322 poultry farms, 3046 fisheries, 3650 shrimp farms, 66 hatcheries and 1 cattle breeding centre. The main exports are shrimp, paddy,jute, wheat, betel leaf, leather and jute goods.

Chapter Two

Literature Review

2.1 Title*:* chemical and pharmacological aspects*Argemone Mexicana*.

Author: Dilip Gorai; Rajiv Roy

Abstract:The Papaveraceae, informally known as the poppy family, are an ethnopharmacologically important family of 44 genera and approximately 760 species of flowering plants. The present work offers a review addressing the detailed chemistry and pharmacology of *Argemone mexicana* L. regarded as one of the most significant plant species in traditional system of medicine. The plant is used in different parts of the world for the treatment of several ailments including tumors, warts, skin diseases, inflammations, rheumatism, jaundice, leprosy, microbial infections, and malaria. Interestingly, the plant is the source of a diverse kind of chemical constituents although alkaloids are mostly abundant. Beyond pharmaceutical efficacies, certain plant parts also show toxic effects as well. Hence, an up-to-date information on the chemical and pharmacological knowledge on this plant may be helpful to guide researchers anticipating to undertake further investigations in these directions. The present review covers literature up to 2012 and enlists 111 references.

2.2 Title:Pharmacological Review on *Centella asiatica.*

Author: Kashmira J. Gohil, Jagruti A. Patel, and Anuradha K. Gajjar.

Abstract: Plants have been used as treatments for thousands of years, based on experience and folk remedies and continue to draw wide attention for their role in the treatment of mild and chronic diseases. In recent times, focus on plant research has increased all over the world and a large body of evidence has been accumulated to highlight the immense potential of medicinal plants used in various traditional systems of medicine.*Centella asiatica* is a very important medicinal herb used in the orient, which is also becoming popular in the West. Commonly known as *mandukparni* or Indian pennywort or *jalbrahmi*, it has been used as a medicine in the Ayurvedic tradition of India for thousands of years and listed in the historic*'Sushruta Samhita'*, an ancient Indian medical text. The herb is also used by the people of Java and other Indonesian islands. In China, known as *gotu kola*, it is one of the reported "miracle elixirs of life" known over 2000 years ago. *Gotu kola* should not be confused with kola nut as it does not contain any caffeine and has not been shown to have stimulant properties. In the nineteenth century, its extracts were incorporated into the Indian pharmacopoeia, wherein in addition to wound healing, it was recommended for the treatment of various skin conditions such as leprosy, lupus, varicose ulcers, eczema, psoriasis, diarrhoea, fever, amenorrhea, and diseases of the female genitourinary tract. Despite large number of studies reported over the past decades on the evaluation of biologically active components and their mechanisms of action, the outcome of these studies is still unsatisfactory. Although there have been several claims regarding the underlying mechanisms involved in the biological actions of this herb, more scientific data are needed to justify its ever increasing use. Therapeutic potential of this plant in terms of its efficacy and

versatility is such that further detailed research would appear momentous. The present review incorporated a detailed account of the plant, stressing its therapeutic uses, pharmacology, mechanisms of action based on preclinical and clinical studies, safety issues along with the current research potential of the herb. A high quality and reliable medical information from the internet was retrieved only from the Health-on-Net (HON) conduct-certified and accredited websites like Entrez PubMed (Medline), CAM-PubMed, Allied and complementary medicine database, Natural Medicine Comprehensive Database, Embase and Cochrane library. The databases were searched up to the year 2009 for the latest information on the herb.

2.3 Title: A Survey of Medicinal Plants Used by Kavirajes of Barisal Town in Barisal District,Bangladesh.

Author: Anita Rani Chowdhury, Farhana Israt Jahan, Syeda Seraj, Zubaida Khatun, Farhana Jamal, Shamima Ahsan, Rownak Jahan, Ishtiaq Ahmad, Majeedul H. Chowdhury, Mohammed Rahmatullah.

Abstract: A substantial section of the population of Bangladesh is poor and more than a third of the total population of 150 million people lives below the poverty line (i.e. having a daily income of less than US$ 1 per day). The poorer section of the population resides mostly in the rural areas and the urban slums. The rural population and population in small towns in addition suffer from proper access to health-care facilities and are not always in a position to afford the costs of allopathic treatment. They therefore rely on folk medicinal practitioners otherwise known as Kavirajes for treatment of their various ailments. The Kavirajes rely on administration of medicinal plants either orally or topically for treatment of diseases. Each Kaviraj has his unique repertoire of medicinal plants, which is closely guarded and usually passed onto an immediate member of the family in the successive generation. The objective of the present study was to conduct a survey on medicinal plant usage among selected Kavirajes of Barisal town in Barisal district, Bangladesh. Interviews were conducted with the help of a semistructured questionnaire and the guided field-walk method. Information was obtained as to the local name of plants, parts used, formulations and dosages. It was found that the interviewed Kavirajes used 49 plants distributed into 28 families in their treatment of various ailments. The Asteraceae, Fabaceae, Lamiaceae, and Moraceae families contributed 4 plans each, while the Solanaceae and the Verbenaceae family contributed 3 plants per family. The various plant parts used by the Kavirajes in their formulations included whole plant, leaf, stem, root, bark, flower, fruit, seed, and sap. Leaves constituted the major plant part used (34.8% of total uses), followed by roots (15.2%). Gastrointestinal disorders (stomach ache, constipation, dysentery, diarrhea) formedthe major group of ailments treated by the Kavirajes and a total of 11 plants were used to treat these ailments. Eight plants were used to treat skin disorders, 7 plants for pain relief, and 6 plants for respiratory tract disorders like coughs and mucus. Other ailments treated by the Kavirajes included urinary tract problems, cuts and wounds, meho (a term used by the Kavirajes to indicate urinary problem arising from endocrinological disorders or diabetes), fever, skin disorders, malaria, rheumatism, dog and snake bites, hepatic disorders (jaundice, enlarged liver), tooth infections, eye problems, heart disorders, diabetes, hydrocele, goiter, helminthiasis, menstrualproblems, and fractures. Plants have always formed a rich source of modern drugs.

CHAPTER THREE

SIGNIFICANCE OF THE STUDY

Significance of the study:

- The knowledge of origin, evolution and migration of several ethnic communities can be gathered.
- It has a great important for the documentation of culture of several communities.
- It provides systemic recording and documentation of indigenous knowledge of plant use in relation with culture before their extinction.
- It helps to find out new useful plant resource for various purposes and their proper domestication.
- The recent increase in the manufacture of herbal drugs has created a large demand for medicinal plants. So, it plays an important role in the establishment of pharmaceutical industries and identifying new and alternative drug.
- It helps to know about the geographical distribution of plant community.
- Documentation of indigenous technology and management system for preservation of plant resources.
- The knowledge of conservation of biodiversity by several communities can be gathered.

CHAPTER FOUR

METHODOLOGY

Methodology:Ethno botany is sometimes interpreted as the mere nothing of folk medical uses of some herbs. The term of medico botany is also used. Ethnobotany is a multidisciplinary science. It is totally, the subject involves anthropology, sociology, botany and of course, medicinal and economic botany. Among the chief lines and tools of research in ethno botany, relevant traditional medicine:

> Field work.

> The herbarium specimen.

In order to document the utilization of medicinal plants, survey was carried out in Narayanpur and Bamonkhali Village of Kolaroa Upazila of Satkhira district of Bangladesh from early November 2014 to late December 2014.So as to get maximum information and also to cross check the information provided by the local informants during the earlier visits. 30 households & 3 Kavirajes were selected randomly for the comprehensive study. Before the household survey, casual field visits were arranged within the villages with local old people, religious leaders, and other key informants to review and document the availability of medicinal plants in the locality. Informal meetings were held in the interviewee's home using the native language (Bengali). After, the interviews, collected information was cross-checked by the local herbal practitioners locally referred to as kaviraj. They had sound knowledge on medicinal plants and were therefore highly rated in the society.The plant species used for medicine were firstly identified by local names by the help of kavirajand old-aged persons. All plant specimen were collected from local forest, follow land, roadside.Plant specimen were collected , dried& brought back for complete identification at the Bangladesh National Herbarium center at Dhaka.The scientific names were obtained by consulting the literature.

Materials: There are some materials which are necessary for field work. These are as follows:

- Presser
- Newspaper
- Cutting plus
- Digital camera
- Jute rope
- Extra battery & memory card,
- Polithin bag
- Torch light
- Tag
- Notebook, pen, pensile,
- Sample carry bag
- Knife
- Costep
- Forsake
- Brush for cleaning

The Herbarium Specimen:

A good herbarium specimen consists of a dried pressed section of plant containing well-preserved vegetation and reproductive (flower, fruits) structures. Plant specimens are mounted for permanent storage on sheets of standard bond paper measuring 11 by 16 inch. In the bottom right hand corner of the sheet is a label containing information on the plant, a description of its appearance, and the area where it was collected. A small paper pouch attached to the herbarium sheet used to keep small pieces of the specimen that might have become dislodged with time as well as extra flowers or fruits purposely collected. Herbarium sheets may also include maps of collection area and handwritten annotations by taxonomists.

Labeling & processing primarily:

Every specimen should be labeled with masking tape with its respective collection number.All sample of the same collection should be carefully bundled & gently pushed to the bottom of collection bag.Delicate plants parts as well as loose material should be placed separately in labeled bags.

Necessary precaution added:

Do not any plant part projecting out of the newspaper,these will break off when dry,parts that may not stay flat can be held in place dry strips of newspaper that is taped to the paper & not the plant.

CHAPTER FIVE

DESCRIPTION

5.1

Local Name: আনারস

Scientific Name: *Ananas Sativus*

Figure 1: *Ananas Sativus*

Botanical Description:A tufted, stemless herb. Leaves linear-lanceolate, 1-1.5 m long, the margins sharply spiny-toothed, green, those subtending the inflorescence red, much reduced. Inflorescence a dense, capitate, spiral, ovoid head, 6-8 cm long, much enlarged in fruit. Mature fruit up to 20 cm long.[1]

Chemical Constituents: Leaves and unripe fruits contain sterols and triterpenes, ergosterol peroxide, stigmastene-diol, ß-sitosterol, campesterol, stigmasterol and campestanol. Leaves and crown of fruits contain 5-hydroxytryptamine and a steroid triterpene. Stems contain a proteolytic enzyme bromelin, starch, a trihydroxy terpenoid carboxylic acid, ananasic acid and glyceryl esters of caffeic and coumaric acids. Fruit also contains polyphenols, phenolic acids, ascorbic and other fruit acids, vitamins A and C and volatile flavouring constituents.[3]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Monocots
(unranked):	Commelinids
Order:	Poales
Family:	Bromeliaceae
Subfamily:	Bromelioideae
Genus:	Ananas
Species:	*A. comosus*

Using Parts: Root, Fruit, Leaf.

Pharmacological Action: The fresh leaf juice is regarded as a powerful anthelmintic, abortifacient and emmenagogue. The unripe fruit contains digestive enzyme 'Bromelin'. In some practices, it may be used to induce abortion or menstruation or as an antihelminthic agent.[3]

Local Use Of Study Area:

a) Combination of leaf and honey is used for treating cough.
b) Juice of the ripe fruit is diuretic.
c) The unripe fruit is abortifacient, digestive, good for influenza.

5.2

Local Name: কালকসিন্দী

Scientific Name: *Justicia gendarussa*

Figure 2: *Justicia gendarussa*

Botanical Description: An erect, slender undershrub, 0.6-1.2 m high. Leaves lanceolate or linear-lanceolate, 7.5-12.5 cm long. Flowers white, spotted purple within, in interrupted spikes, 5-12.5 cm long, from uppermost leaf axils and often forming terminal panicle. Corolla 1.3 cm long.[4]

Chemical Constituents: Leaves contain a bitter and slightly toxic alkaloid, some aromatic amines and sitosterol. Roots also contain sitosterol.[5]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Acanthaceae
Genus:	Justicia
Species:	*J. gendarussa*

Using Parts: Leaf, Bark.

Pharmacological Action:

Bark is a good emetic. Leaves are insecticidal; used in chest pain, rheumatism and eczema. An infusion of the leaves is given internally in cephalalgia, hemiplegia and facial paralysis. The leaves and tender shoots are diaphoretic; decoction is given in chronic rheumatism.[5]

Local Use Of Study Area:

a) The leaf of this plant is used for treating pain and sprained leg.
b) It is also used to treat cough, cold, throat infections and asthma.

5.3

Local Name: *থানকুনি*

Scientific Name: *Centella asiatica*

Figure 3: Centella asiatica

Botanical description: Centella grows in tropical swampy areas.[7] The stems are slender, creeping stolons, green to reddish-green in color, connecting plants to each other. It has long-stalked, green, rounded apices which have smooth texture with palmately netted veins. The leaves are borne on pericladial petioles, around 2 cm. The rootstock consists of rhizomes, growing vertically down. They are creamish in color and covered with root hairs.[8]

The flowers are white or pinkish to red in color, born in small, rounded bunches (umbels) near the surface of the soil. Each flower is partly enclosed in two green bracts. The hermaphrodite flowers are minute in size (less than 3 mm), with 5-6 corolla lobes per flower. Each flower bears five stamens and two styles. The fruit are densely reticulate, distinguishing it from species of hydrocotyle which have smooth, ribbed or warty fruit.[6] The crop matures in three months, and the whole plant, including the roots, is harvested manually.

Chemical Constituents: The primary active constituents of Centella Asiatica are saponins (also called triterpenoids), which include asiaticosides, in which a trisaccharide moiety is linked to the aglycone asiatic acid, madecassoside and madasiatic acid.[9]These triterpene saponins and their sapogenins are mainly responsible for the wound healing and vascular effects by inhibiting the production of collagen at the wound site. Other components isolated from Centella Asiatica, such as brahmoside and brahminoside, may be responsible for CNS and uterorelaxant actions, but are yet to be confirmed by clinical studies. Crude extract containing glycosides isothankuniside and thankuniside showed antifertility action in mice.[10,11] Centelloside and its derivatives are found to be effective in the treatment of venous hypertension. In addition, the total extract contains plant sterols, flavonoids, and other components with no known pharmacological activity.[12]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Apiales
Family:	Apiaceae
Subfamily:	Mackinlayoideae
Genus:	Centella
Species:	*C. asiatica*

Using Parts: Leaf.

Pharmacological Action: *Centella asiatica* is used to treat bacterial, viral, or parastitic infections such as urinary tract infection (UTI), shingles, leprosy, syphilis, the common cold, influenza, H1N1 (swine) flu, elephantiasis, tuberculosis, and schistosomiasis. *Centella asiatica* is also used for fatigue, anxiety, depression, psychiatric disorders, Alzheimer's disease, and improving memory and intelligence. Other uses include wound healing, trauma, and circulation problems (venous insufficiency) including varicose veins, and blood clots in the legs. Some people use Centella asiatica for sunstroke, tonsillitis, fluid around the lungs (pleurisy), liver disease (hepatitis), jaundice, systemic lupus erythematosus (SLE), stomach pain, diarrhea, indigestion, stomach ulcers, epilepsy,"tired blood" (anemia), and for helping them live longer. Some women use gotu kola for preventing pregnancy, absence of menstrual periods, and to arouse sexual desire. Gotu kola is sometimes applied to the skin for wound healing and reducing scars, includiung stretch marks caused by pregnancy.[13]

Local Use Of Study Area:

a) The leaf juice is used for treatingcholera, dysentery, asthma.
b) The leaf is also used in diabetes, indigestion.

5.4

Local Name: বাকড়সা

Scientific Name: *Adhatoda Vasica*

Figure 4: Adhatoda Vasica

Botanical Description: A large shrub grows crowded along waste land, roadsides etc. Leaves, 10-30 cm long and 3-10 cm broad, lanceolate to ovate-lanceolate, slightly acuminate, base tapering, petiolate, petioles 2-8 cm long, exstipulite, glabrescent, 8-10 pairs of lateral vein bearing few hairs, dried leaves dull brown above. Flowers arise from axillary condensed spikes, white; fruits are capsules.[14]

Chemical Constituents: Main chemical components are vasicine, 2'-hydroxy -4-glucosyloxychalcone, vasicol, adhatodine, vasicinone, vasicinol, arachidic, cerotic, behenic, lignoceric, linoleic and oleic acids.[15]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Acanthaceae
Genus:	Justicia
Species:	*J. adhatoda*

Using Part: Leaf

Medicinal Uses:

- **Antiasthmatic and bronchodilatory activity:** Vascine which is a major component of the herb's alkaloids displayed bronchodilatory activity in-vivo and in-vitro.
- **Anti-bacterial activity:** The methanolic extract from the leaves showed strong activity of the alkaloid against certain bacteria. Another study proved the ability of the extract in inhibiting bacterial population in untreated water which suggested its use in improving quality of drinking water.
- **Anti-tubercular activity:** Certain derivatives of vasicie are used as mucolytics. This along with other direct and indirect effects makes Ahatoda vasica useful in treating tuberculosis.
- **Cholagouge activity:** In experiments conducted on cats and dogs, the amount of excretion of bile increased with an additional effect of diluting the bile and increasing bilirubin excretion.
- **Uterotonic and abortifacient activity:** Vasicine displayed both these effects due to priming effect of oestrogen hormone.
- **Wound-healing activity:** On treating buffalo calves with powdered, chloroform or alcoholic extracts of Ahatoda vasica, marked improvement in the process of healing was observed.[16]

Local Use Of Study Area:

a) The leaf extract is used for treating cough.
b) The leaf juice is also used to treat dyspepsia.

5.5

Local Name: *তলাকচু*

Scientific Name:*Coccinia grandis*

Figure 5: *Coccinia grandis*

Botanical Description: It is an annual creeper which is found spreading on ground and twilling around the trees and supports around it. The stem is pentagonal in shape. Leaves are triangular or pentagonal in shape; it is dentate and has a length of 2 to 5 inch and breath of 2 inch. Flowers are monocieus and are bid in size. They are placed in bunches having about 2 to 4 flowers. These are of white color.It is green in color when it is raw form which turns to scarlet red color when it ripes. It also possesses about ten white stripes on its posterior portion. This fruit posses numerous seeds inside. Its roots are long and resemble tuberous roots.

Chemical Constituents: Its roots contain resins, certain alkaloids, starch, glucose, gum, fatty acids, carbonic acid and ash that constitute about 16 %. Besides these contains minerals like calcium, iron and phosphorus.

Scientific Classification:

Kingdom	Plantae
Division	magnoliophyta
class	magnoliopsida
order	cucurbitales
family	cucurbitaceae
Genus	Coccinia
Species	indica

Using Parts: Roots, Fruits and Leaves.

Pharmacological Action: It is a good wound healer and reduces any kind of inflammation occurring in body. It is good appetizer and helps in improving digestion. It stimulates liver for

proper secretion of bile juices. It is also used in wormal infestation especially in amoebiasis caused by entamoeba hystolitica. It also purifies blood. It is also helpful in expelling the extra amount of mucus accumulated in the respiratory tract. It also controls the frequency of micturation. It also helps in opening the pores in the skin so as to facilitate the easy secretion of sweat thus expelling out the toxin in the body.[17]

Local Use Of Study Area:

a) Combination of root and mustard oil is used for treating dysentery.
b) Leaf extract is a good laxative.
c) It is also used in diabetes.

5.6

Local Name: পপুল

Scientific Name:*Piper peepuloides*

Figure 6: *Piper peepuloides*

Botanical Description: Perennial herb or scrambling shrub up to 4 m tall, much-branched from near the base; stems from a woody rootstock, succulent, ribbed, rooting at the nodes. Leaves alternate, simple and entire; stipules absent; petiole 6.5–30 cm long, sheathing basally; blade almost circular to kidney-shaped.

Chemical Constituents: The essential oil from the aerial parts of Piper peepuloides has a high content of β-pinene (27%), α-pinene (18%), (E)-nerolidol (12%) and β-caryophyllene (10%). Other compounds found include safrole, germacrene-D, β-cadinene, δ-cadinene and bicyclogermacrene. The roots and aerial parts contain 4-nerolidylcatechol, a powerful antioxidant with chemopreventative potential.

Using Parts: Leaves.

Pharmacological Action: The leaves of *Piper umbellatum* are widely used as an emollient, vulnerary and antiseptic. They are employed in poultices on swellings, boils and burns; the juice is taken as an emmenagogue, galactagogue and diuretic, or used as ear drops against earache. A decoction of the leaves or roots is taken to relieve jaundice, malaria, urinary and kidney

problems, syphilis and is also applied on wounds and inflamed tumours. A root decoction is used as a powerful digestive and as a treatment for dyspepsia, constipation and stomach-ache.[18]

Local Use Of Study Area:

a) In my study area it is used for treating fever, cough and flux.
b) It is used in gonorrhoea, leucorrhoea, menstrual problems.
c) The root is a good diuretic.

5.7

Local Name: উলুট কম্বল

Scientific Name: *Abroma augusta*

Figure 7: *Abroma augusta*

Botanical Description:*Abroma augusta* is a large shrub. Leaves large, 10-15 by 10-12.5 cm, repand-denticulate, upper smaller, narrower, entire.Flowers solitary, axillary, pendulous, peduncle up to 4 cm long; sepals 2.5 cm, lanceolate; petals scarcely exceeding the sepals, dark red.

Chemical Constituents: Leaves contain taraxerol, its acetate and β-sitosterol. Stem bark contains friedelin and β-sitosterol. Root and root bark contain gum, fixed oil, resin, alkaloids, abromine, choline and betaine, β-sitosterol, stigmasterol, digitonide, magenesium salts of hydroxyl acids and polysaccharide. Seeds contain 20.2% fixed oil with 71.5% linoleic acid. Augustic acid an oleanane derivative and a stigmasterol glycoside have been isolated from the roots.

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malvales
Family:	Malvaceae
Genus:	Abroma
Species:	*A. augustum*

Using Parts: Roots, Leaves.

Pharmacological Action: Root bark is uterine tonic and a reputed emmenagogue. The fresh viscid juice of the root-bark is useful in the congestive and neuralgic varieties of dysmenorrhoea. Leaves and stems are demulcent. Petioles are useful in dysentery, weakness and burning urination.[19]

Local Use Of Study Area:

a) In my study area the combination of root and honey shows its effectiveness against erectile dysfunction.
b) It is also used for treating leukorrhea.
c) It is used in amenorrhoea and dysmenorrhoea.

5.8

Local Name: *ঈষের মূল*

Scientific Name: *Aristolochia indica*

Figure 8: Aristolochia indica

Botanical Description: The Aristolochiales are a group of flowering plants that have attractive leaves and flowers, often with bizarre colors or patterns, and so they are cultivated in gardens. Some oddly shaped flowers have been given names like "bird's head" and "Dutchman's pipe". In this genus, the sepals are united into a long curving tube which completely surrounds the reproductive structures.[20] The flowers of the plant give out bad odour. Tender leaves are light purple in colour.[21]

Chemical Constituents:

Roots contain phenanthrene derivative, the chief active constituent of which is aristolochic acid. They also contain isoaristolochic acid, allantion, other phenanthrene derivatives, alkaloid, aristolochine; a number of sesquiterpenes, ishwarone, ishwarane, aristolochene; ishwarol, tannins and an essential oil containing carbonyl compounds.[22]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Magnoliids
Order:	Piperales
Family:	Aristolochiaceae
Genus:	Aristolochia
Species:	*A. indica*

Using Parts: Rhizomes, leaves and roots.

Pharmacological Action: The root is stimulant, tonic and emmenagogue; employed in malarial fever, intermittent fevers and useful in pains in the joints, given to children for flatulance and dyspepsia. The juice of the root is given orally in stomachache and rheumatism in Jointiapur of Sylhet. Decoction of root is used in impotency. The juice of fresh leaves is stomachic, tonic and antiperiodic. Seeds are purgative; useful in inflammations, biliousness, dry coughs, joint pains and dyspnoea of children.[22]

Local Use Of Study Area:

a) In my study area it is useful in skin disease.
b) The combination of root and chili is used as anti-venom medicine.
c) The juice of leaves is used in vomiting.

5.9

Local Name: *শিয়ালকাঁটা*

Scientific Name:*Argemone mexicana*

Figure 9: *Argemone mexicana*

Botanical Description: It is a prickly, glabrous, branching herb with yellow juice and showy yellow flowers. The height of this plant varies between 0.3 to 0.12 meters, Leaves are thistlelike. Stem clasping, Oblong, sinuately pinnatifid, spinous and viens are white. Flowers are terminal, yellow and of 2.5–5.0 cm diameter. Fruits are capsule. Prickly and oblong ovoid. Seeds numerous, globose, netted and brownish black.[23]

Chemical Constituents: Most of the isolated compounds belong to the class of alkaloids; besides, terpenoids, flavonoids, phenolics, long-chain aliphatic compounds, and few aromatic compounds are found to be other constituents of this plant.[24]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
Order:	Ranunculales
Family:	Papaveraceae
Genus:	Argemone
Species:	*A. mexicana*

Using Parts: Leaves, roots, seeds.

Pharmacological Action: The plant is diuretic. purgative and destroys worms. It cures lepsory, inflammations and bilious fevers. Roots are anthelmintic.. Seeds resemble mustard seeds and in India it is used to adulterate mustard seed. Seed yield non edible toxic oil and causes lethal dropsy when used with mustard oil for cooking.[23]

Local Use Of Study Area:

a) In my study area the leaf juice is used to cure ophthalmia and opacity of cornea.
b) Skin disease is treated by cooking the leaves of this plant.
c) Seeds are used for sedative action.

5.10

Local Name: দূবাঘাস

Scientific Name : *Cynodon dactylon*

Figure 10: *Cynodon dactylon*

Botanical Description: The blades are a grey-green colour and are short, usually 2–15 cm (0.79–5.91 in) long with rough edges.[23] The erect stems can grow 1–30 cm (0.39–11.81 in) tall. The stems are slightly flattened, often tinged purple in colour.

The seed heads are produced in a cluster of two to six spikes together at the top of the stem, each spike 2–5 cm (0.79–1.97 in) long.[24]

It has a deep root system; in drought situations with penetrable soil, the root system can grow to over 2 metres (6.6 ft) deep, though most of the root mass is less than 60 centimetres (24 in) under the surface. The grass creeps along the ground and roots wherever a node touches the ground, forming a dense mat. *C. dactylon* reproduces through seeds, runners, and rhizomes. Growth begins at temperatures above 15 °C (59 °F) with optimum growth between 24 and 37 °C (75 and 99 °F); in winter, the grass becomes dormant and turns brown.

Chemical Constituents: The chemical constituents present in *Cynodondactylon*are – β-sitosterol, β- carotene, vitamin C, palmitic acid, triterpenoids, arundoin, friedelin, selenium, alkaloids- ergonovine ergonovinine, ferulic, syringic, p- coumaric, vanilic, p hydroxybenzoic and o-hyroxyphenyl acetic acids, cyanogenichyperoside, cyanogenicglucoside- triglochinin, furfural, furfural alcohol, phenyl acetaldehyde, acetic acid, phytol, β- ionone; mono and oligosaccharides, lignin (wholeplant); hydrocarbons (tritriacontane) esters, eicosanoic and docosanoic acids, freealcohol, free aldehydes (hexadecanal) and free acids (hexadecanoic acid).

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Commelinids
Order:	Poales
Family:	Poaceae
Genus:	Cynodon
Species:	*C. dactylon*

Using Parts: Root, stem, leaf.

Pharmacological Action: The grass has various pharmacological activities. The dried extracts of aerial parts of *Cynodon dactylon* was examined for CNS activities in mice. Anti-pyretic, diuretic and antimicrobial activity are some of the various essential functions of it. *Cynodon dactylon*is very effective in snakebite therapy and the anti snake venom from the plant extract is very effective to treat patients who are bitten by a snake. The grass is used as a traditional folk medicine in India and many other places for the treatment for various diseases and disorders. Other prominent activity includes anti-inflammatory and antioxidant activity.

Local Use Of Study Area:

a) Combination of plant leaf and bay leaf is used for treating pox.
b) The leaf extract is also useful in tuberculosis.
c) It is also used as anti-diabetic, anti-ulcer, analgesic medicine.

5.11

Local Name: বাবলা

Scientific Name : *Acacia Nilotica*

Figure 11: *Acacia Nilotica*

Botanical Description: Perennial shrub or tree, 2.5–10 (–20) m tall, variable in many aspects. Branches spreading, forming a dense flat or rounded crown with dark to black colored stems; branchlets purple-brown, shortly or densely pubescent , with lenticels. Bark thin, rough, fissured, deep red-brown.
Spines (thorns) thin, straight, light-grey in axillary pairs, usually in 3–12 pairs, 5–7.5 cm long in young trees, mature trees commonly without thorns. Leaves bipinnate 30–40 mm long, often with 1–2 petiolar glands and other glands between all or only the uppermost pinnae; pinnae 2–11 (–17) pairs, with 7–25 pairs of leaflets (1.5–7 mm long) per pinnae. Peduncles clustered at nodes of leafy and leafless branchlets. Flowers prolific, golden yellow, in globulus heads 1.2–1.5 cm in diameter. Pods straight or slightly curved, 5–15 cm long on a pedicel, 0.5–1.2 cm wide, with constrictions between the seeds giving the appearance of a string of pearls, fleshy when young, indehiscent, becoming black and hard at maturity. Seeds deep blackish-brown, smooth, sub-circular, compressed, areole 6–7 mm long, 4.5–5 mm wide. Seed weight ranges from 5,000–16,000 seed/kg.[25]

Chemical Constituents: Phytochemical screening of the stem bark of *A. nilotica*exposed that the plant contain terpenoids, alkaloids, saponins and glycosides. This plant recommends a variety of phytochemical such as gallic acid, ellagic acid, isoquercitin, leucocyanadin, kaempferol-7-diglucoside, glucopyranoside, rutin, derivatives of (+)-catechin-5-gallate, apigenin-6,8-bis-C-glucopyranoside, m-catechol and their derivatives.
Using Parts: Root, stem bark, leaf, gum, seeds, pods.

Pharmacological Action: Placing the ground leaves of the plant on the eyes at night is a common conjunctivitis treatment. It is also used as an intoxicant and aphrodisiac. Modern research is confirming many of the traditional uses of the plant. Studies show that an extract of Acacia nilotica is an effective diarrhea treatment when administered to laboratory animals. A decoction of the bark taken orally acts as an astringent, easing the symptoms of diarrhea and accompanying intestinal pains.

Acacia nilotica extracts have been analyzed for antioxidant properties. Its effectiveness against fungus, especially yeast infections, is also being studied. Other promising research shows its antiviral properties may be effective against the hepatitis C virus. Research is also being conducted to determine its potential as a diabetes treatment. [26]

Local Use Of Study Area:

a) The leaf juice is useful in dysentery.
b) Bark is used in colds and pneumonia.
c) The bark is also used in dysentery and diarrhea.

5.12

Local Name: আমরুল

Scientific Name: *Oxalis rubra*

Figure 12: *Oxalis rubra*

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Oxalidales
Family:	Oxalidaceae
Genus:	Oxalis
Species:	*O. rubra*

Using Parts: Leaf.

Local Use Of Study Area: In my study area the leaf juice is useful in dysentery.

5.13

Local Name: নিম

Scientific Name: *Azadirachta indica*

Figure 13: *Azadirachta indica*

Botanical Description: Neem is a fast-growing tree that can reach a height of 15–20 metres (49–66 ft), rarely to 35–40 metres (115–131 ft). It is evergreen, but in severe drought it may shed most or nearly all of its leaves. The branches are wide and spreading. The fairly dense crown is roundish and may reach a diameter of 15–20 metres (49–66 ft) in old, free-standing specimens. The neem tree is very similar in appearance to its relative, the Chinaberry (Meliaazedarach).

The terminal leaflet is often missing. The petioles are short. The (white and fragrant) flowers are arranged in more-or-less drooping axillary panicles which are up to 25 centimetres (9.8 in) long. The inflorescences, which branch up to the third degree, bear from 150 to 250 flowers. An individual flower is 5–6 millimetres (0.20–0.24 in) long and 8–11 millimetres (0.31–0.43 in) wide. Protandrous, bisexual flowers and male flowers exist on the same individual tree.

The fruit is a smooth (glabrous) olive-like drupe which varies in shape from elongate oval to nearly roundish, and when ripe is 1.4–2.8 centimetres (0.55–1.10 in) by 1.0–1.5 centimetres (0.39–0.59 in). The fruit skin (exocarp) is thin and the bitter-sweet pulp (mesocarp) is yellowish-white and very fibrous. The mesocarp is 0.3–0.5 centimetres (0.12–0.20 in) thick. The white, hard inner shell (endocarp) of the fruit encloses one, rarely two or three, elongated seeds (kernels) having a brown seed coat. [27]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Sapindales
Family:	Meliaceae
Genus:	Azadirachta
Species:	*A. indica*

Chemical Constituents:

• Leaf extracts: Active constituents of neem leaf extract include isomeldenin, nimbin, nimbinene, 6-desacetyllnimbinene, nimbandiol, immobile, nimocinol, quercetin, and beta-sitosterol.[28] Two additional tetracyclic triterpenoidszafaral and meliacinanhydride have been isolated from the methanolic extract of neem leaves.[29]
• Seed: Active constituents have not been determined with certainty. The neem seed extracts vary in each batch in terms of stability and activity. Two new tetranortriterpenoids, azadirachtin and azadirachtin have been isolated from neem seeds.[30]
• Tree: Azadirachtin is a tetranortriterpenoid from the neem tree.[31] Neem bark and leaves contain tannin and oil.

Using Parts: Leaf, seed, tree.

Pharmacological Action:

Products made from neem trees have been used in India for over two millennia for their medicinal properties.[32] Neem products are believed by Siddha and Ayurvedic practitioners to be anthelmintic, antifungal, antibacterial, antiviral, contraceptive andsedative.[33] It is considered a major component in siddha medicine and Ayurvedic and Unani medicine and is particularly prescribed forskin diseases.[34] Neem oil is also used for healthy hair, to improve liver function, detoxify the blood, and balance blood sugar levels.[35]

Local Use Of Study Area:

a) In my study area it is used as anti-ulcerant and anti-diarrheal medicine.
b) Leaves are used to treat skin diseases like eczema.
c) Leaves are used as anti-diabetic medicine.

5.14
Local Name: শ্বেতবাড়িলা

Scientific Name: *Sida rhombifolia*

Figure 14:*Sida rhombifolia*

Botanical Description: It is an erect, branched shrub reaching 0.5 to 1.5 meters in height. Leaves are oblong to rhomboid, 1 to 4 centimeters long, the apex rounded or pointed, the margins toothed, and the lower surface covered with very short pale hairs. Flowers occur singly in the axil of the leaves. Calyx is green. Corolla is yellow, about 1.5 centimeters diameter. Fruit has 8 to 10 carpels which are smooth or somewhat wrinkled, about 2.5 millimeters long and awned. [36]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malvales
Family:	Malvaceae
Genus:	Sida
Species:	*S. rhombifolia*

Chemical Constituents: Seven ecdysteroids, including three new compounds were isolated. Four – ecdysone, 20 hydoxyecdysone, 2-deoxyecdysone, 2-deoxy-hydroxyecdysone-3-O-ß-D-glucopyranoside and 20-hydroxyecdysone-3-O-ß-D-glucopyranoside were reported for the first time.Phytoscreening of a methanol extract yielded alkaloids, flavonoids, and reducing sugars. An aqueous-methanol extract yielded tannins, polyphenols, alkaloids, glycosides, flavonoids, and saponins.[36]

Using Parts: Whole plant

Pharmacological Action: Plant considered anti-rheumatic, antipyretic, appetite stimulant, anti-asthmatic, CNS depressant, laxative, demulcent, emollient, hypotensive, stomachic, sudorific, tonic, vasorelaxant. Roots are considered febrifuge, cooling, astringent, tonic, hepatoprotective, antibacterial, anti-inflammatory and antioxidant. [36]

Local Use Of Study Area:

a) In my study area it is used as anti-hypertensive medicine.
b) It also contains diuretic action.
c) It is also used as analgesic medicine.

5.15

Local Name: কাঁটাকচু

Scientific Name:*Rhaphidophora pertusa*

Figure 15:*Rhaphidophora pertusa*

Botanical Description: Stout perennial climbers, stem cylindrical, 4 cm thick, fleshy. Leaves 25-35 x 25-30 cm, broadly ovate, pinnatisect or rarely entire, apex acute, base rounded; petiole 20-35 cm long, channeled. Inflorescence solitary, axillary; spathe to 20 x 8 cm long, ovate-oblong, concave, acute, creamy white; spadix 12 cm long, 2 cm thick. Flowers unisexual, densely packed. Female flowers basal; ovary obconical, truncate, 1-celled; ovule solitary; stigma knob-like.Male flowers above; stamens 4-6, free.[37]

Scientific Classification:

Kingdom: Plantae
Phylum: Magnoliophyta
Class: Magnoliatae
Order: Arales
Family: Araceae
Genus: Rhaphidophora
Species: *Rhaphidophora pertusa*

Using part: Leaf.

Local Use Of Study Area: In my study area it is used as anti-inflammatory and analgesic medicine.

5.16

Local Name: দইয়েখইয়ে

Scientific Name:*Aerva lanata*

Figure 16: *Aerva lanata*

Botanical Description:

Herb, erect or prostrate with a long tap-root, branched from near the base; branches many, pubescent or wolly- tomentose, striate. Leaves alternate, 2-2 × 1-1.6 cm on the main stem, 6-10 x 5-6 mm on the branches, elliptic or obovate, or subotbicular, obtuse or acute, entire, pubescent

above, more or less white with cottony hairs beneath; petioles 3-6 mm long, often obscure. Flowers greenish white, very small, sessile, often bisexual, in small dense subsessile axillary heads or spikes 6-13 mm long, often closely crowded and forming globose clusters; bracteoles 1.25 mm, long, membranous, broadly ovate, concave, apiculate. Perianth 1.5-1.25 mm long; sepals oblong, obtuse, sometimes apiculate, silky-hairy on the back. Utricle broadly ovoid, acute; stigmas two, seed 0.85 mm in diameter, smooth and polished, black.[38]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Core eudicots
Order:	Caryophyllales
Family:	Amaranthaceae
Subfamily:	Amaranthoideae
Genus:	Aerva
Species:	*A. lanata*

Chemical Constituents:

Alkaloids: Plant contains biological active canthin-6-one alkaloids such as 10-methoxy-canthin-6-one, 10-hydroxy-canthin-6-one, 10-O-β-D-glucopyranosyloxycanthin-6-one.Plant also contains alkaloids like β-carboline-1 -propionic acid, 6-methoxy-β carboline-1-propionic acid.

Flavanoids: *Aerva lanata* is a rich source of flavanoids such as kaempferol, quercetin, isorhamnetin, isorhamnetin.

Miscellaneous phytoconstituents: *Aerva lanata* also contains methyl grevillate, lupeol, lupeol acetate benzoic acid, β-sitosteryl acetate and tannic acid.

Using part: leave, root, flower

Pharmacological Action:A leaf-decoction is prepared as a gargle for treating sore-throat and used in various complex treatments against guinea-worm. to wash Babies that have become unconscious during an attack of malaria or of some other disease are washed with a leaf decoction at the same time smoke from the burning plant is inhaled. The leaf-sap is also used for eye-complaints. An infusion is given to cure diarrhoea and in an unspecified manner at childbirth, and on sores. For pains in the lower part of the back leaves and flowers are reduced to ash which is rubbed into cuts on the back.[39]

Local Use Of Study Area:

a) Combination of root and red sugar is useful for treating leukorrhea.
b) It is also used as anti-diarrheal medicine.
c) The root is used in a snake-bite treatment.

5.17

Local name: কানফুল

Scientific name: *Hibiscus Scandens*

Figure 17: *Hibiscus Scandens*

Scientific Classification:

Kingdom: Plantae
Phylum: Magnoliophyta
Class: Magnoliopsida
Order: Malvales
Family: Malvaceae
Genus: Hibiscus
Species: *Hibiscus scandens*

Using parts: Root.

Local Use Of Study Area: Root is used for treating leukorrhea.

5.18

Local Name: কালঢেড়া

Scientific Name: *Diplazium sylvaticum*

Figure 18: *Diplazium sylvaticum*

Chemical Constituents:

It contains essential oils, alkaloids, flavonoids, phenolic compounds, glycosides, terpenoids, tannins etc.

Scientific Classification:

Kingdom: Plantae
Phylum: Peridophyta
Class: Polypodiopsida
Order: Polypodiales
Family: Woodsiaceae
Genus: Diplazium
Species**:** *Diplazium sylvaticum*

Using Parts: Root.

Local Use Of Study Area: The root is used as anti-diarrheal medicine.

5.19

Local Name: লালছইে

Scientific Name:*Sesbania cannabina*

Figure 19: *Sesbania cannabina*

Botanical Description: Annual 1–3 m high, young stems and leaves with spreading hairs, ± glabrescent with age.Leaves 5–20 cm long, leaflets 12–30 pairs, ± oblong, 7–20 mm long, 2–4 mm wide, apex obtuse or truncate and apiculate, petiole 1–10 mm long, petiolules c. 1 mm long. Racemes 1–5-flowered, peduncle 5–40 mm long, pedicels 3–6 mm long.Calyx 3–4 mm long, teeth triangular, c. 2 mm long. Corolla c. 10 mm long, yellow, standard streaked with purple on back. Pod terete, 12–20 cm long, 2.5–3 mm diam, seeds 3–4 mm long.[40]

Scientific Classification:

Kingdom: Plantae
Subkingdom: Tracheobionta
Superdivision: Spermatophyta
Division: Magnoliophyta
Class: Magnoliopsida
Subclass: Rosidae
Order: Fabales
Family: Fabaceae
Genus: Sesbania
Species: *Sesbania cannabina*

Using Parts: Root, Bark, Leaf.

Local Use Of Study Area:

a) The leaf extract is useful in dysmenorrhea.
b) It is also used in treatment of epilepsy.

5.20

Local Name: সাদাদুধগাছ

Scientific Name: *Euphorbia hirta*

Figure 20: *Euphorbia hirta*

Botanical Description: It is a slender- stemmed, annual hairy plant with many branches from the base to top, spreading upto 40 cm in height, reddish or purplish in color. Leaves are opposite, elliptic - oblong to oblong- lanceolate, acute or subacute, dark green above, pale beneath, 1- 2.5 cm long, blotched with purple in the middle, and toothed at the edge. The fruits are yellow, three- celled, hairy, keeled capsules, 1-2 mm in diameter, containing three brown, four-sided, angular, wrinkled seeds.

Chemical Constituents:*E. hirta* has been studied by various workers and a number of active constituents have been isolated. Afzelin, quercitrin and myricitrin have been isolated from the methanolic extract of *E. hirta*.The chemical investigation of *E. hirta* has led to the isolation of rutin, quercitin, euphorbin-A, euphorbin-B, euphorbin-C, euphorbin-D, 2,4,6-tri-*O*-galloyl-D-glucose, 1,3,4,6-tetra-*O*-galloyl-D-glucose, kaempferol, gallic acid, and protocatechuic acid. *E. hirta* also contains amyrin, 24-methylenecycloartenol, sitosterol, heptacosane, *n*nonacosane,shikmic acid, tinyatoxin, choline, camphol and quercitol derivatives containing rhamnose and chtolphenolic acid.

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malpighiales
Family:	Euphorbiaceae
Genus:	Euphorbia
Species:	*E. hirta*

Using Parts: All parts.

Pharmacological Action:*E. hirta* is used in the treatment of gastrointestinal disorders (diarrhea, dysentery, intestinal parasitosis, etc.), bronchial and respiratory diseases (asthma, bronchitis, hay fever, etc.), and in conjunctivitis. Hypotensive and tonic properties are also reported in *E. hirta*. The stem sap is used in the treatment of eyelid styes and a leaf poultice is used on swelling and boils. Extracts of *E. hirta* have been found to show anticancer activity. The aqueous extract of the herb strongly reduced the release of prostaglandins I_2,E_2, and, D_2. Methanolic extract of leaves have antifungal and antibacterial activities. The latex of *E. hirta* is applied on lower eyelids, like surma to cure eye sores. The root exudate exhibits nematicidal activity against juveniles of meloidogyne incognita. Decoction of fresh herbs is used as gargle for the treatment of thrush. Root decoction is also beneficial for nursing mothers deficient in milk. Roots are also used for snake bites. The polyphenolic extract of *E. hirta* has antiamoebic and antispasmodic activity. [41]

Local Use Of Study Area:

a) The root is used in diarrhea,dysentery.
b) It is also used as analgesic and anti-inflammatory medicine.
c) It is also used in skin disease.

5.21

Local Name: চিড়চিড়ে

Scientific Name: *Achyranthes aspera*

Figure 21: *Achyranthes aspera*

Botanical Description: Achyranthes asperais a coarse perennial herb, 30-90 cm high. Leaves few, 2.5-12.7 cm, elliptic or obovate, round at the apex, generally thick, softly pubescent, tomentose or velvety; flowers small in slender, elongated, terminal spikes, soon deflexed.[43]

Chemical Constituents: Leaves, stems and roots contain alkaloids, sterol and saponins. Root contains ecdysone, ecdysterone (polypodine A) and insect moulting hormones. Seeds contain saponin A&B. Fruit contains two oleanolic acid based saponins. The plant also contains an alkaloid achyranthine (=betaine), amino acids, arginine, histidine, lysine, cystine, threonine, methionine, lucine, isolucine, phenylalanine, tryptophan and carbohydrate, valine, α-rhamnopyranosyl, ß-D gluuronopyranosyl, ß-D galactopyranosyl, galactose, xylose, rhamnose and glucose, large amount of potash, hormones, ecdysterone and inokosterone. [42]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Core eudicots
Order:	Caryophyllales
Family:	Amaranthaceae
Genus:	Achyranthes
Species:	*A. aspera*

Using Parts: All parts.

Pharmacological Action: Plant is laxative, stomachic, carminative, astringent, depurative, emetic and good diuretic; found efficacious in renal dropsis and general anasarca. Also used in coughs, pneumonia, rheumatism, piles, boils, skin eruptions, kidney stone and colic. The ash of the plant is used in cases of asthma and coughs; mixed with orpiment, the ash is used externally in the treatment of ulcers and warts.

Root is used in ophthalmia, dropsy and cutaneous diseases. An infusion of the root is emetic and astringent; reported to be useful for easy delivery and in eczema. Seeds are emetic; used in hydrophobia. Paste made of root powder and black pepper is given on acne to cure.

The plant extract possesses antifungal properties. Benzene extract of the bark showed antiimplantation activity in mice and abortifacient activity in rabbit. The alkaloid betaine lowered Blood pressure, depressed heart rate, caused vasodilation, increased respiration in animals; it is spasmodic on rectus muscle of frog and possesses diuretic and purgative action on albino rats. [42]

Local Use Of Study Area:

a) In my study area it is effective for treating erectile dysfunction.
b) It is also used in paralysis.
c) The root is used in skin disease.
d) Juice of the leaves are used in dysentery.

5.22

Local Name: খেজুরের মোথা

Scientific Name: *Phoenix sylvestris*

Figure 22: *Phoenix sylvestris*

Botanical Description: A tall graceful palm, 9-15 m high. Trunk rough from the persistent base of the leafstalks.Crown herispherical. Leaves 3-4.5 m long, pinnate, leaf bases bears few triangular short spines, reaching 10 cm. Pinnules very numerous, densely fascicled, 15-45 cm long, rigid, ensiform, spinous pointed. Fruit orange, 2.5-3.2 cm long, oblong-ellipsoid, scattered on long pendulous similarly coloured spikes. [44]

Chemical Constituents: Fruits contain ascorbic acid, free amino acids, mainly alanine. In addition they contain sugars, tannins, mucilage, vitamins A, B and D. They also contain salts and iron in an assimilable form. Seeds yield a fatty oil containing principally palmitic, oleic and linoleic acids. Juice of the tree contains reducing sugars, aspartic acid, nicotinamide, nicotinic acid, isoniazide and thiamine. [44]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Monocots
(unranked):	Commelinids
Order:	Arecales
Family:	Arecaceae
Genus:	Phoenix
Species:	*P. sylvestris*

Using Parts: Sap of the plant, central tender part, fruit, gum.

Pharmacological Action: Sap of the plant is nutritious, cooling and laxative. Central tender part is useful in gonorrhoea and gleet. Fruit is tonic and restorative. Being a sedative and nervine tonic the fruit is usefully employd for relieving backache and pain in the buttocks. Seed kernel, made into a paste with roots of *Achyranthes aspera* is taken with betel leaf for the remedy of ague. [44]

Local Use Of Study Area:

a) In my study area It is used in cough, fever and gonorrhoea.
b) Root is used in toothache and in nervous debility.
c) Gum is useful in diarrhea.

5.23

Local Name:ঝড়পান

Scientific Name: *Scoparia dulcis*

Figure 23: *Scoparia dulcis*

Botanical Description: Sweet Broom Weed is a branched herb with wiry stems, growing up to 1 m tall. Narrowly elliptic, almost stalkless leaves are arranged oppositely or in whorls of 3. Leaves are 3-4 X 1-1.5 cm wide, with serrated margins. Small white, hairy flowers occur in leaf axils. The stamens are greenish and the ovary is green. The capsule is nearly round. [45]

Chemical Constituents: The plant contains an alkaloid, an anti-diabetic principle, amellin, diterpenoids, viz., scopadulcic acid A and B, scoparic acid A, B and C, a tetracyclic diterpenoid, scopadulciol, 6-methoxy benzoxazolinone, glutinol and acacetin. An aqueous fraction of the ethanolic extract of the plant has been shown by HPLC analysis to contain both noradrenaline (norepinephrine) and adrenaline (epinephrine). Hexacosanol, ß-sitosterol and D-manitol are present in root bark.

Ifflaionic acid togeher with 6-methoxybenzoxazolinone have been isolated from roots. Scutellarein, its 7-O-methyl ether and its 7-O-ß-D-glucuronide have been isolated from leaves. Root contains a triterpene and mannitol and aerial parts contain dulcitol. [46]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Plantaginaceae
Genus:	Scoparia
Species:	*S. dulcis*

Using Parts: All parts.

Pharmacological Action: It has been used to treat various problems such as hemorrhoids and wounds, while it is used to manage sickle-cell diseaseand applied to a wide range of problems including anemia, burns and headaches. It is also used to protect the stomach from ulcers.[47] [48] [49] [50] [51]

Local Use Of Study Area:

a) It is used to treat diabetes.
b) It is also used as anti-hypertensive medicine.
c) It is effective in anemia.

5.24

Local Name: মুকঝুরি

Scientific Name: *Acalypha indica*

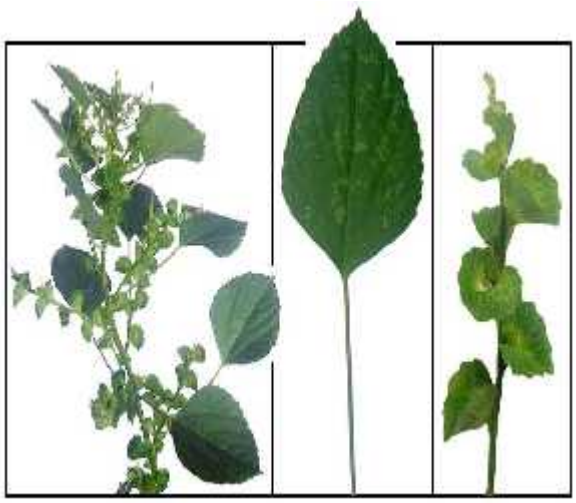

Figure 24: *Acalypha indica*

Botanical Description: Acalypha indicais an annual, erect herb, up to 1 m high. Leaves 2.5-7.5 cm long, ovate or rhomboid-ovate, crenate-serrate. Flowers in numerous lax, erect, elongated axillary spikes, the male minute, clustered near the summit of the spike, the females scattered, surrounded by a large, dentate, cuneiform bracts. Capsules small, hispid.[52]

Chemical Constituents: The plant contains kaempferol, a cyanogenetic glucoside, a base, triacetonamine and an alkaloid, acalyphine. It also contains the amide, acalyphamide and some other amides, 2-methylanthraquinone, tri-O-methyl ellagic acid and γ-sitosterol, ß-sitosterol, ß-sitosterol glucoside, stigmasterol, n-octacosanol, quinine, tannin, resin and essential oil.[52]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malpighiales
Family:	Euphorbiaceae
Genus:	Acalypha
Species:	*A. indica*

Using Parts: Whole plant

Pharmacological Action: Plants are emetic, expectorant, laxative and diuretic; useful in bronchitis, pneumonia, asthma and pulmonary tuberculosis. Leaves are laxative and antiparasiticide; ground with common salt or quicklime or lime juice applied externally in scabies. Leaf paste with lime juice prescribed for ringworm. Leaf juice is emetic for children.A decoction of the leaves is given in earache. Powder of the dry leaves is given to children to expell worms; also given in the form of decoction with little garlic. [52]

Local Use Of Study Area:

a) The leaf juice is used as anti-ulcerant medicine.
b) It is also used in skin disease.
c) The plant is used in severe cough associated with bleeding.

5.25

Local Name:জামানিপাতা

Scientific Name: *Eupatorium odoratum*

Figure 25: Eupatorium odoratum

Botanical Description: Aromatic shrub; covered in fine grey hairs; stems rounded; blades ovate to diamond shaped, 5-15cm long, acuminate, with yellow dots below; flowers pale mauve or violet. [53]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Genus:	Eupatorium
Species:	*Eupatorium odoratum*

Using Parts: Leaf.

Pharmacological Action: It is used as a traditional medicine. The young leaves are crushed, and the resulting liquid can be used to treat skin wounds.It is also a tonic and stimulant. For bronchitis of children it is given with milk.[53]

Local Use Of Study Area:

a) Combination of leaf extract and salt is used as anti-ulcerant medicine.
b) It is used in cold, fever.
c) It is also useful in skin disease.

5.26

Local Name: বুনোভাঁট

Scientific Name: *Clerodendrum viscosum*

Figure 26: *Clerodendrum viscosum*

Botanical Description:A shrub or undershrub, 0.9-2.4 m high. Leaves large, 10-25 cm long, ovate, acuminate, hairy on both sides. Flowers white tinged with pink, on large pubescent, panicles. Fruit, a drupe, 8 mm across, black.[54]

Chemical Constituents: The plant contains saponin, flavonoids, alkaloids, a new glycoside, clerodendroside, lupeol, benzoic acid derivatives and ß-sitosterol. The plant also contains clerosterol, clerodolone, clerodone. Leaves contain protein, free reducing sugar, a bitter principle, clerodin a sterol, oleic, stearic and lignoceric acids, tannin, glucuronide and gallic acid. The seeds contain a fatty oil, in which the major fatty acids are palmitic, oleic and linoleic acids.[54]

Scientific Classification:

Kingdom: Plantae
Phylum: Magnoliophyta
Class: Magnoliatae
Order: Lamiales
Family: Verbenaceae
Genus: Clerodendrum
Species:*Clerodendrum viscosum*

Using Parts: Leaves, Roots.

Pharmacological Action: The plant is tonic, antipyretic and anthelmintic. Leaves and roots are used in asthma, tumours and certain skin diseases. Expressed juice of the leaves is laxative and cholagogue. Leaves are also used in chest complaint with cough and difficult expectoration. In Rangamati, leaf-boiled water is used as a bath in jaundice by the tribal; Marmas take bath for scabies. Root juice along with ginger is given to relieve colic pain by the Garo in Madhupur. Alcoholic extract of the young leaves possesses strong antibacterial and poor. [54]

Local Use Of Study Area:

a) Leaves and roots are used in asthma and skin diseases.
b) Root juice is warmed and rubbed on the penis to treat erectile dysfunction.
c) The leaves are used in malaria.

5.27

Local Name: হাগড়া

Scientific Name: *Sida cordifolia*

Figure 27: *Sida cordifolia*

Botanical Description:*S. cordifolia* is an erect perennial that reaches 50 to 200 cm (20 to 79 in) tall, with the entire plant covered with soft white felt-like hair that is responsible for one of its common names, "flannel weed". The stems are yellow-green, hairy, long, and slender. The yellow-green leaves are oblong-ovate, covered with hairs, and 3.5 to 7.5 cm (1.4 to 3.0 in) long by 2.5 to 6 cm (0.98 to 2.36 in) wide. The flowers are dark yellow, sometimes with a darker orange center, with a hairy 5-lobed calyx and 5-lobed corolla.[55]

Chemical Constituents:

Asparagin,
alkaloid:ephedrine, hypaphorine, vasicinone, vasicine and vasicinol, phytosterols, mucin, gelatin, potassium nitrate and rutin. Ephedrine content of whole plant is 0.085 %. The seeds contain 0.32% of alkaloid. A study reported 0.112% of ephedrine in whole plant of *Sida cordifolia*. The seeds contain more alkaloids that that is found in the stems, roots or leaves. Non-polar constituents have been reported from plant growing in Bangladesh. [56]

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malvales
Family:	Malvaceae
Genus:	Sida
Species:	*S. cordifolia*

Using Parts: Root, bark, leaves, flowers and seeds.

Pharmacological Action: According to Ayurveda, the plant is tonic, astringent, emollient, aphrodisiac and useful in treatment of respiratory system related troubles. Bark is considered as cooling. It is useful in blood, throat, urinary system related troubles, phthisis, insanity etc. [57]

Local Use Of Study Area:

a) The combination of leaf extract and salt is used in erectile dysfunction.
b) It is also used in the treatment of piles.

5.28

Local Name: নিমকো

Scientific Name: *Stephania japonica*

Figure 28: Stephania japonica

Botanical Description: It is a woody smooth vine. Leaves are oval or sub-rounded oval in shape, 6 to 15 centimeters in length, and 4 to 12 centimeters in width, with obtuse and nearly retuse apex and rounded base, and smooth on both surfaces, with long petioles, 4 to 12 centimeters long. Inflorescences are in umbels on peduncles 3 to 4 centimeters in length. Male and female flowers are small, and pale yellow. Fruit is red, small, rounded but flattened, about 8 millimeters long and 6 millimeters wide.

Chemical Constituents: Phytochemical analysis of leaf extracts yielded alkaloids, glycosides, flavanoids, saponins, carbohydrates, tannins, phenols, and mucilage. Stem yields alkaloids, metastephanin, protosetaphin; phenol base and base. Roots, tubers and leaves yield alkaloids, steroids, and fats. Roots and tuber alkaloids are: aknadinine, aknadine and aknadicine. Stems yield bis-benzylisoquinoline alkaloids, stephasubine and 3'-4'-dihydro-stephasubine, saponins, steroids and fats. Roots yield alkaloids, franchinoline, dl-tetrandrine, d-tetrandrine and d-isochondrodendrine. Aerial parts have yielded aknadinine, epistephaine, hernandifoline and magnoflorine. Study isolated an alkaloid with a phenanthrene nucleus, hasubanonine.

Scientific Classification:

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
Order:	Ranunculales
Family:	Menispermaceae
Genus:	Stephania
Species:	*S. japonica*

Using Parts: Whole plant.

Pharmacological Action: Used for skin sores, ulcers, furuncles, snake bites, stomach pains and leg edema. roots used for treatment of fever, diarrhea, dyspepsia and urinary diseases. In Japan and Taiwan, plant decoction used for malaria. In Indonesia, roots used for stomach aches.

Local use of Study Area:

a) It is used as blood coagulant.
b) Roots and leaves used for fever and diarrhea.
c) Leaves are used in urethritis

5.29

Local Name: বাঁটুকুনি

Scientific Name:*Cyathula prostrata*

Figure 29: Cyathula prostrata

Botanical Description: It is an annual, branched herb, reaching a length of 1 meter or more, with the stems prostrate and creeping below. Leaves are rhomboid-oblong, 2 to 8 centimeters long, and gradually tapering to an acute base. Spikes are terminal and axillary, slender, peduncles, and 5 to 20 centimeters long. Flowers are numerous, greenish, ovoid, and about 3 millimeters long. Sepals are hairy. Fruit is an ellipsoid utricle, 1.5 to 2 millimeters long, thin-walled, hairless, one-seeded, surrounded by a stiff perianth. Seed is ovoid, 1.5 to 1.5 millimeters long, shiny brown.

Chemical Constituents: Phytochemical screening yielded saponins, tannins, flavonoids, alkaloids, cardiac glycosides and steroids.

Scientific Classification:

Kingdom :	Plantae
Subkingdom:	Tracheobionta
Division :	Magnoliophyta
Class :	Magnoliopsida
Subclass:	Caryophyllidae
Order :	Caryophyllales
Family :	Amaranthaceae
Genus :	Cyathula
Species :	*Cyathula prostrata*

Using Parts: Whole Plant.

Pharmacological action: Used by the Malays externally and internally. Decoction used for coughs. Decoction of roots used for dysentery. In Cameroon, plant used in prescriptions for articular rheumatism. In Nigeria plant used for by traditional healers to treat cancer. In Gabon, used for treating eye troubles, wounds, and urethral discharges.

Local Use of Study Area:

a) It is used in the treatment of dysentery.
b) It is effective in pain and inflammatory disorders.
c) Root with *betel vine*is used in the treatment of infertility of women.

CHAPTER SIX

ANALYSIS

Analysis: A total of 29 plants distributed into 21 families were observed to be used by the 3 Kavirajes for treatment of various ailmentslike **c**ough, pain, cholera, dysentery, fever, fl*ux*,erectile dysfunction, leucorrhea, skin disease, ophthalmia, opacity of cornea, pox, tuberculosis, hypertension, inflammation, diarrhea, dysmenorrheal, paralysis, gonorrhea, ulcer, asthma. The Malvaceae family contributed the highest number of plants with four plants, followed by the Leguminosae and Euphorbiaceaefamily with two plants respectively. Other important families included the verbenaceae, Oxalidaceae, Aristolochiaceae, Cucurbitaceae.

Table 1: Medicinal plants commonly used in Satkhira:

Serial Number	Local Name	Scientific Name	Family
1	আনারসেরপাতা	*Ananas Sativus*	Bromeliaceae
2	কালকসিন্দী	*Justicia gendarussa*	Acanthaceae
3	থানকুনি	*Centella asiatica*	Apiaceae
4	বাকড়সা	*Adhatoda Vasica*	Acanthaceae
5	তেলাকচু	*Coccinia indica*	Cucurbitaceae
6	পেপুল	*Piper peepuloides*	Piperaceae
7	উলুটকম্বল	*Abroma augusta*	Malvaceae
8	ঈষেরমূল	*Aristolochia indica*	Aristolochiaceae
9	শিয়ালকাঁটা	*Argemone mexicana*	Papaveraceae
10	দূবাঘাস	*Cynodon dactylon*	Poaceae
11	বাবলা	*Acacia Nilotica*	Leguminosae
12	আমরুল	*Oxalis rubra*	Oxalidaceae
13	নিম	*Azadirachta indica*	Meliaceae

14	শ্বেতবাড়িলা	*Sida rhombifolia*	Malvaceae
15	কাঁটাকচু	*Rhaphidophora pertusa*	Araceae
16	দইয়েখইয়ে	*Aerva lanata*	Amaranthaceae
17	কানফুল	*Hibicus Scandens*	Malvaceae
18	কালঢেড়া	*Diplazium sylvaticum*	Athyriaceae
19	লালছইঞ্চে	*Sesbania cannabina*	Leguminosae
20	সাদাদুধগাছ	*Euphorbia hirta*	Euphorbiaceae
21	চিড়চিড়ে	*Achyranthes aspera*	Amaranthaceae
22	খেজুরেরমোথা	*Phoenix sylvestris*	Arecaceae
23	গুড়পান	*Scoparia dulcis*	Plantaginaceae
24	মুক্তঝুরি	*Acalypha indica*	Euphorbiaceae
25	জামানিপাতা	*Eupatorium odoratum*	Asteraceae
26	বুনোভাটি	*Clerodendrum viscosum*	verbenaceae
27	হাগড়া	*Sida cordifolia*	Malvaceae
28	নিমকো	*Stephania japonica*	Menispermaceae
29	বৌ-ঠুকুনি	*Cyathula prostrata*	Amaranthaceae

For treating a disease I have found more than one plant. The list of number of plant that I have found for treating a specific disease are given below-

Table 2: The list of number of plant for treating a individual disease

Disease	Number of plant
Cough	5
Asthma	3
Diuretic	3
Diabetes	5
Dysentery	5
Leucorrhoea	3
Erectile dysfunction	4
Skin disease	7
Diarrhea	5
Hypertension	2
Ulcer	5

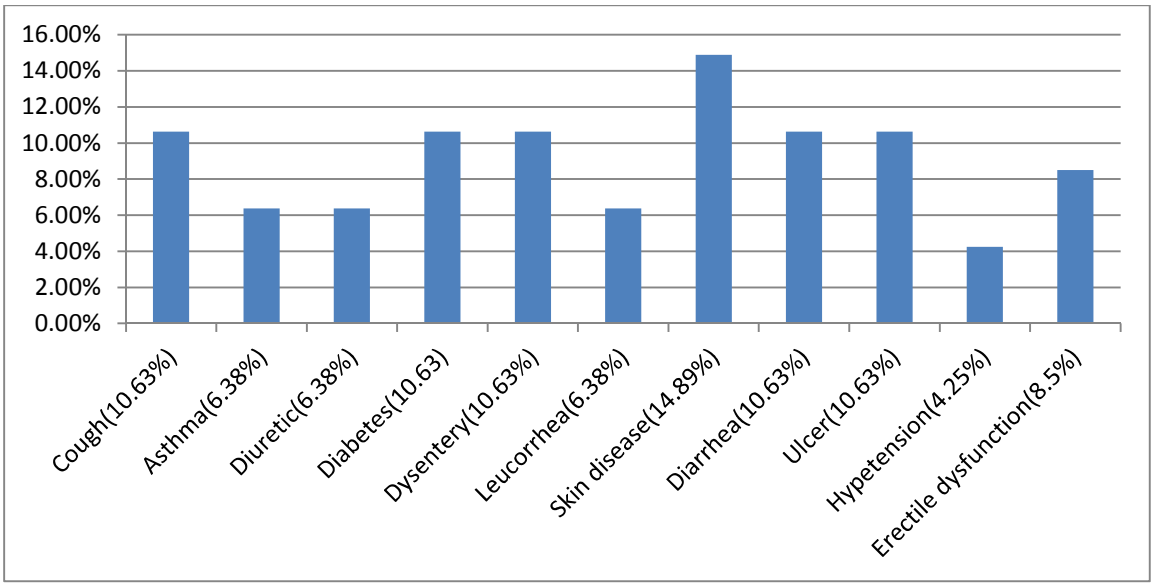

Figure 30: Percentage of plant that is indiacated against individual disease

Table 3: Percentage of plant parts used for indigenous medicines

Name of plant part	Percentage (%)
Roots	26.53
Leaves	25.76
Bark	8.16
Whole plant	14.28
Fruit & seeds	6.12
Flower	3.01

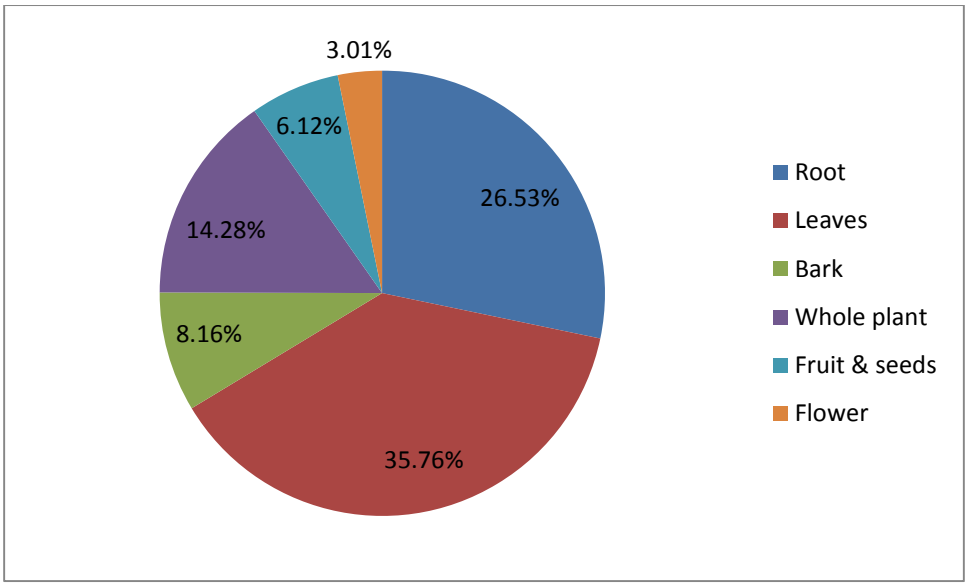

Figure 31: Percentage of plant parts used for indigenous medicines

CHAPTER SEVEN

CONCLUSION

Conclusion: Allopathic medicine can benefit greatly from this study. The modern scientist can benefit from the plethora of plants used by folk medicinal practitioners of Bangladesh for treatment of any specific disease. A number of diseases that are treated by folk medicinal practitioners (Kavirajes) cannot be treated with allopathic drugs. Moreover, some diseases treated with allopathic drugs cause serious side effects. Even a common pain killer drug like paracetamol can cause hepatic damages as well as gastrointestinal upsets. Folk medicine offers new possibilities of fresh drug discoveries from the plant kingdom, which allopathic medicine can use to effect total cure or at least minimize serious side-effects. The Kavirajes' method, as observed in the present study, also demonstrated a certain depth of knowledge in the efficaciousness of different parts from the same plant when administered either orally or topically, and also indicated that the Kavirajes also had a certain amount of knowledge in the use of additives, like the use of oil with plant parts for topical administration, or the use of molasses with plant parts for oral administration. Allopathic medicine has gained considerably through observation of indigenous people's medicinal practices. The Kavirajes of Bangladesh merit further consideration for detailed scientific studies as to their uses of various medicinal plants for treatment of diverse ailments. Diseases like hypertension or diabetes are on the rise in modern society because of a change in lifestyle and an increase in stress. The medicinal plants used by the Kavirajes in the study to alleviate diabetes or hypertension can prove useful in the discovery of novel drugs to treat such diseases.

CHAPTER EIGHT

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