

## **A Current Perspective of Bangladeshi Medicinal plants: Phytochemical, Pharmacological and Traditional uses**

Md. Sarowar Hossain<sup>1</sup>, Md. Mizanur Rahman<sup>1</sup>, Sonia Tamanna<sup>2</sup>

<sup>1</sup>Department of Pharmacy, Daffodil International University, Bangladesh

<sup>2</sup>Department of Biochemistry and Molecular Biology, University of Dhaka

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### **Abstract**

Medicinal plants have been used as a part of basically all social orders as a wellspring of medication. Medicinal plants have consistently assumed a significant job in finding new drug elements. As a wellspring of lead compounds, they are an incredible fascination for researchers. In such manner, the medicinal plant of Bangladesh can assume an imperative job. In the course of recent years, there has been a huge investigation on pharmacological and phytochemical properties of Bangladeshi medicinal plants. In this paper, the pharmacological and phytochemicals along with their traditional use of 150 plants are assessed. Pharmacological screening of the plant indicated the presence of anticancer, antimicrobial, anti-inflammatory and etcetera. Carbohydrates, Alkaloids, Tannins, and Flavonoids like phytochemicals presence were watched. Thus, this demonstrates the lavishness of the pharmacological activity of the plants of Bangladesh. There are additionally plants yet to be found for their action. As of late, researches on medicinal plants have caught eye worldwide in the field of as therapeutic plants are viewed as the more secure source of drugs.

**Key Words:** Medicinal plants, Pharmacological effects, Traditional uses

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### **I. Introduction**

Medicinal plants are defined by WHO as plants which contains some compounds that can be the lead to produce drug and can be used for therapeutic purposes[1]. Medicinal plants are used in medicaments of diseases since the ancient time. They have always played a vital role in the treatment of disease [2]. According to WHO, For the treatment of disease more than 80% of people use non-allopathic medicines [3]. From ancient times, people have look for drugs in nature to cure their illness. The lack of information about which plants and how they could be used as remedies. In the meantime, for the treatment of certain diseases the use of certain medicinal plants has been found. Thus, the use of medicinal plants gradually uninhibited the experimental framework and was based on descriptive facts. The shrubs were the origin action towards and prevention until iatrochemistry emerged [4].

Various techniques have been used to obtain compounds for drug innovation including separation from plants and other natural sources. The current interest in molecular modeling, combinatorial chemistry and other synthetic chemistry methods by pharmaceutical companies and funding organizations along with natural produces and particularly medicinal plants, remain a significant source of new drug leads, new drugs and new chemical entities (NCEs). 61% of the 877 small-molecule NCEs presented as medications worldwide amid 1981– 2002 was encouraged by natural products [5]. These include natural natural products byproducts (27%), products (6%), synthetic compounds with natural products derived pharmacophore (5%) and synthetic compounds designed from natural products (natural products mimic, 23%) [6,7].

These new medications have gotten approbation for the treatment of cancer, neurological ailments, infective diseases, metabolic ailments, cardiovascular, inflammatory, immunological and related diseases, and hereditary disorder which incorporate a large number of the basic human diseases. Moreover, new medications prompted on the market from 2000 to date, there are an assortment of new chemical entities from natural sources experiencing clinical trials [5].

Ethnobotany is the evaluation of how a specific culture and area make of utilization of native plants. Ethnobotany has its foundations in plant science. Thus, Natural science began partially from a passion for discovering plants to help battle against ailment. Medicine and plant science have dependably had close ties. A lot of the present medications have been gotten from plant sources. Pharmacognosy is the investigation of reviving and poisonous items from normal plant sources. At one time, doctors were educated in plant-determined cures where pharmacologists looking into drugs were required to comprehend the characteristic plant world. In many countries, modern medicine and drug research advanced replaced plants as the source of

most medicinal agents. In spite of the fact that plants were as yet utilized as the reason for some medication development, the prevailing interest moved to the laboratory [8].

Medicinal plants are very important. It acts against many diseases because medicinal plants contain many compounds that are supportive to our body. They act on various system of our body. Sometimes they act as insect repellent to kill harmful insects. Sometimes they are used on the basis of an investigation of the opinions, behavior or anything else. Many countries used medicinal plants in the first place of their treatment [4]. Bangladesh is a country of green land. Various types of trees or bushes, shrub, weed, seeds, stem bark are here that can be used for nursing. Firstly, a establish method is needed to set up. Bangladesh being a country of this Indian subcontinent also possess a great variety, mixture, mix, range, medley, multiplicity in bushes, seeds, and shrub. In Bangladesh, there are around two thousand medicinal plants in this sub-continent and 449 medicinal plants are enlisted [9].

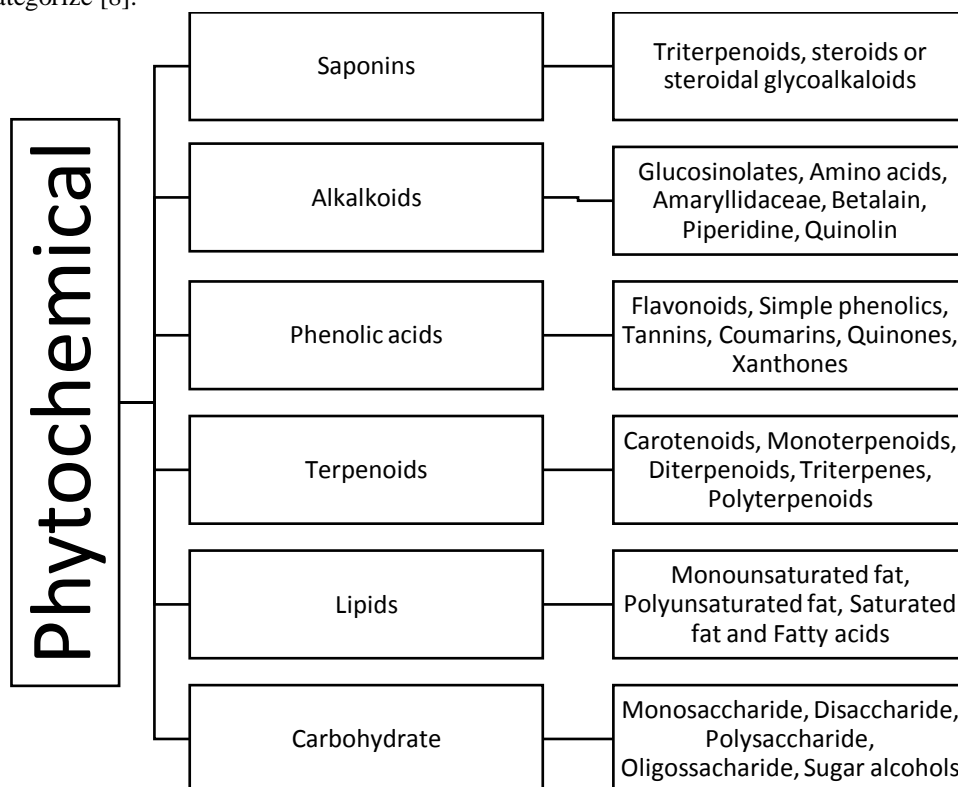
In Bangladesh treatment of illnesses with medicinal plants are known as kabirajee. Considerably after the headway of science and innovation in pharmaceuticals, medicinal plants are as yet utilized in the treatment of sickness by the rustic individuals and the information is passed down from age to age [10]. Statistics shows in Bangladesh there are around 5000 of plants having a place with 200 families. Among these plants around 500 are utilized in conventional medication and additionally as crude materials in pharmaceuticals [11]. In spite of the fact that, there are numerous plants utilized in kabirajee in treatment of illnesses however their efficacy isn't experimentally demonstrated. These plants on ailments may appear to work yet them appear to less scientific data to demonstrate their efficacy [12].

The point of the current examination was to make a reference for analysts and scholastics, increment the information on medicinal plants by documenting the pharmacological and phytochemical concentrate on some Bangladeshi medicinal plants. The principal goal of this investigation was-

- Increase the information on medicinal plants of Bangladesh.
- Identifying another exploration region for medicinal plants.

### Phytochemicals

The chemical compounds derived from plant fruit, bark roots or leaves and produced in small amount in plants by secondary metabolism are known as phytochemicals. Phytochemicals are classify into six major groups. They are Carbohydrate, Alkaloids, Lipids, Saponins, Terpenes, Phenolic acids. These are further divided into subcategorize [8].



*Figure 1* Categorization of Phytochemical

### Phenolics

Phenolics are the mostly found secondary metabolites of plants and are considered to be the largest group of secondary metabolites. Many of the phenolics show pharmacological activity as Antiinflammatory, antioxidant and free radical scavengers. According to their structure Phenolics are classified into-

**Simple Phenolics** –Gallic acid is the most widely found among them. Most common activity of gallic acid is known as astringent property. But it also shows activity like antiviral, antifungal, Antiinflammatory, antitumor, bronchodilatory action. The most recognized pharmacological properties of simple phenols are antimicrobial activity by arbutin and Antiinflammatory activity by salicylates [13].

**Tannins** - Depending on their chemical structure tannins are divided into two groups: hydrolysable and condensed tannins [13]. Research suggests that tannins have pharmacological activities like antibacterial activity, Antidiarrheal, antiviral, inhibition of lipid-peroxidation, tumor promotion, mutagenicity of carcinogens [14].

**Coumarins** – Coumarins are widely distributed in higher plants. They can be found in seed, fruit, flower, leaves or stems. Their main function in plants is to defense against microorganisms attack. The most common biological activity of coumarins is anticancer, anticoagulant, anti-alzheimer, anti-inflammatory [15].

**Flavonoids** - Flavonoid present in flower function is to provide color. In leaves they protect it from fungal pathogens and UV- B radiation [16]. Research suggested that Flavonoids shows anti-allergic, anti-inflammatory, antioxidant, vasodilating, antimicrobial activity. Among these antioxidants is the most established bioactivity of flavonoid. Flavonols, Flavones and anthocyanins are mostly found flavonoids in plants [17].

**Chromones and Xanthenes** – Among all the compounds chromones and xanthenes are with less pharmacological importance. Gentianaceae is a great source of xanthenes. Research on *Polygala nyikensis* reported that, root contains xanthenes and shows antifungal activity [15].

**Stilbenes** – Stilbenes are widely found in heartwood of trees but they are a small group of secondary metabolites. Resveratrol is known to have estrogen like activity. Hypocholesterolemic activity has been shown in mice from stilbenes found in *Cajanus cajan* plant [18].

**Lignans** – Report shows lignans are formed by two molecules of phenylpropene derivative. Mostly known pharmacological activity of lignans are antimicrobial and antifungal [17].

### Alkaloids

There are about 2000 of known alkaloid compounds and 20 percent of these compounds are from flowering species. Alkaloids mostly found in plants as salts of organic acids like malic, lactic and other acids [19]. For example, quinoline exhibits ample bioactivity. They are protective agent against predators in arthropods. Benzoquinone, naphthoquinone, and Anthraquinone exhibit significant antibiotic and antitumor properties. Similarly, isoquinoline shows immune-stimulatory, cytotoxic and antimalarial activity [20].

### Saponins

Saponins are pentoses, hexoses or uronic acid composed of sugar units. Depending on their structure they are classified into Triterpenoids, steroids or steroidal glycoalkaloids. Saponins show activity like analgesic, piscicidal, antitumor and sedative properties [21].

### Lipids

Lipids were considered as primary metabolite but some researches show that they have some pharmacological activities too. Fixed oils contain some polyunsaturated fatty acids that reduced the excretion of lipid peroxidant resulting in Antiinflammatory and antioxidant activity. Antiseptic, antimicrobial, analgesic, sedative activity has shown by essential oil of plants [15].

### Terpenoids

Terpenoids are mainly classified as hemiterpenoids, monoterpenoids, sesquiterpenoids, diterpenoids, sesterterpenoid, Triterpenoids, tetraterpenoids, polyterpenoids. They show biological activities like antibacterial, anticancer, antifungal, hepatoprotective, Antiinflammatory [22].

### Carbohydrates

Carbohydrates are evaluated as primary metabolites but glycosidation linkage they show influence on secondary metabolites. Carbohydrates like mucilage act as minor pain reliver and anti-inflammatory agent [21].

### **Pharmacological Activity**

Pharmacological activity is defined as the biological effect in living cell attained by specific molecular entity [22]. The secondary metabolites found in plants shows many pharmacological activities. These activities include antiinflammatory, anticancer, antidiabetic, antimicrobial, analgesic activity [23]. Some of these pharmacological activities are explained below-

#### **Anti-inflammatory**

Inflammation is explained as the first response of body to any injury or infection. Antiinflammatory is the response of any substances that reduces inflammation. This activity is exhibited by many medicinal plants. Some Phenolic compounds like condensed tannins, flavonoids, gallo tannins show antiinflammatory effect by inhibiting some molecular targets. Proanthocyanidins show antiinflammatory response in two ways. They show response as antagonist of particular hormone or inhibitors of COX enzymes. Proanthocyanidins also shows biological activity like antioxidant, anti-asthmatic, anticancer. Gallotannins shows Antiinflammatory by scavenging of radicals and cytokines, inducible nitric-oxide synthase, COX-2 inhabitation [24].

#### **Antimicrobial**

Antimicrobials are called that kill the microorganisms. Antibiotics are used against bacteria and antifungal. But the increasing antibiotic resistances become involved scientists to discover new antimicrobial agents. Secondary metabolites of plants are a great source of antimicrobials. As antimicrobial agents Alkaloids, Tannins, Flavonoids, Quinones, Terpene, showed some great potential [25].

#### **Wound Healing**

The process of repairing the injury of the skin or other tissues is known as wound healing. Its reported that wound healing still not issued safe as it cannot minimize the hospitalization of patients suffering from a wound (Taweepraditpol et al, 2017). Flavonoids like myristin, kaempferl are some common phytochemicals show wound healing activity that is found in plants [26].

#### **Immunomodulatory**

Immunomodulatory is defined as the process that alters the immune response by stimulation or suppression that may result in a disease-free state. It's observed that there is a worldwide increase in infectious disease. So there is always a need for Immunomodulatory agent. Secondary plant metabolites like Diterpenes, xanthones shows Immunomodulatory activity [27].

#### **Antidiabetic**

They are the agents used in diabetic mellitus and help to control blood glucose levels. Report shows there are 1.5 million of deaths for diabetic each year. Though there are medications like biguanides, sulphonylureas, thiazolidinediones are available but they exhibit a number of side effects. So, there is an urgency of search for new safer medicine with fewer side effects. Secondary metabolites like flavonoids, metformin, quercin, catechin, anthocyanin, flavones, coumarins found in plants have shown major impact on diabetics [28].

#### **Antiulcer**

Antiulcer agents provided protection of mucosal layer from ulceration and inflammation. Among the secondary metabolite's alkaloids, terpenoids, flavonoids mostly show Antiulcer activity [29].

### **Traditional Use of BangladeshiPlants**

In Bangladesh for common diseases like cold, cough, pain, diarrhoea medicinal plants are widely used. They also show activities like antihelminthics, antidiabetic, antifungal, antiinflammatory, analgesic and etcetera.

In the table, traditional use of some medicinal plants are collected together. From the table, it's clearly evident that the Leguminosae family is mostly contributed to the plant species. For the treatment leaves, stems, flower, fruits or bark are used. They are also used with a mixture of other medicinal plants for treatment purposes.

The ethnomedical use of these plants show the wilderness of medicinal plants in Bangladesh. It's evaluated that the demand for medicinal plants is increasing 15% to 20% each year and by 2050 the business will be US\$ 5Trillion [30].

### **Pharmacological and Phytochemical Study on BangladeshiPlants**

In recent years there have been promising advances in synthetic medicine but still there are many diseases like cancer, diabetics and cronhn's disease don't have proper medication. there has been a vast investigation on phytochemical and pharmacological activities of Bangladeshi plants in the past twenty years.

The plants included in the table are all investigated for their phytochemical and pharmacological activities. The phytochemical screening of the plants reported the present of phytochemicals like alkaloids, saponins, flavonoids, tannins.

After studying the table, we observed that among the plant's flavonoids were found in 120 of the plants. For example, from the flower and leaves of *Acalypha indica* flavonoids like nicotiflorin, mauritianin, biorobin, clitorin were isolated. From *Barleriapronitistwo* flavonoids 7-methoxy luetoline and luetoline was isolated [11].

Alkaloids are a broad class of nitrogen containing compounds and they are found in higher plants. From the table, Anthraquinone type of alkaloids was found to be present in 15 of the plants. Anthraquinone is known to show laxative activity. Among the plant's alkaloid was not found in, *Bambusaarundinacea*, *Justicia gendarussa*, *Ficus racemosa*, *Luffa acutangula*, *Mikania cordifolia*, *Morus alba*, *Pisum sativum*.

In the table saponins are uronic acid or pentoses composed of sugar units. They can be subdivided into steroid, Triterpenoids, steroidal glycosides. From the table, it's observed 13 of the plants shows the present of triterpenoids. Triterpenoids containing plants shows activity like immunomodulatory, hepatoprotective, anticarcinogenic. From the table, it's also observed 79 of the plants show presence of steroids. Sterol's presence was also detected in the plants. For example, B-sitosterol has cholesterol like structure and also found in almost all plants like *Abutilon indicum* [31].

Phenolic compounds like tannins, Coumarins was also found in phytochemical screening of plants. Tannins were found in 142 of plants. Phlobatannin was found in 6 plants from table 2. Coumarins was found in 13 of plants. The plants with Coumarins showed the presence of bioactivities like Antitumor, analgesic and antihypertension like activity.

The desired part of the plant leaves, root, bark or whole plant was separated and dried, ground to coarse powder than extracted using methanol, ethanol or other organic solvents for the screening of the pharmacological activity. After that the extracts were tested for their desire phytochemicals or pharmacological activity. For pharmacological screening, activities like Antidiabetic, anthelmintic, Antiinflammatory, antiulcer the plant extracts were introduced into rat model. Among the activities antimicrobial activity was calculated by zone inhabitation in mm. Antibacterial and antifungal activity was determined by standardized zone inhabitation technique.

**Table 1 Traditional use, phytochemicals and pharmacological use of some Bangladeshi plants**

Scientific name	Family	Local name	Traditional use	Pharmacological activity	Phytochemical	Reference
<i>Alternanthera sessilis</i>	Amaranthaceae	Mati konduri	Relive tiredness Antiinflammatory Analgesic	Antihyperglycemic Analgesic Antimicrobial Wound Healing Anticancer Antiinflammatory	Alkaloids Flavonoids Amino acids Carbohydrates Phenols Steroids Terpenoids Saponins Glycosides	[32]
<i>Amaranthus spinosus</i>	Amaranthaceae	Kantanotya	In treatment of Jaundice  Diuretic	Antiulcer Antinociceptive Hepatoprotective Antiinflammatory Diuretic Antidiarrheal Bronchodilator Laxative Antidepressant Antidiabetic	Flavonoids Tannins Saponins Glycosides	[33]
<i>Amorphophallus campanulatus</i>	Araceae	Oal	Antiinflammatory Tumors Arthralgia	Antibacterial Antifungal Hepatoprotective Immunomodulatory Anthelmintic Antiinflammatory Antitumor	Alkaloids Glycosides Saponin Anthauinone glycosides Cardiac glycosides Tannins Phenolic compounds Flavonoids Proteins Fats and oils Carbohydrates	[34]

<i>Andrographis Paniculata</i>	Acanthaceae	Kalmegh	Cold Diarrhea In treatment of jaundice	Antidiabetic Anticancer Immunostimulatory Antimicrobial Antioxidant Antiangiogenic Antiinflammatory Antimalarial Antibacterial Antiobesity Antidiarrheal Hepatorptective	Alkaloids Amino acids Carbohydrates Flavonoids Phenolic groups Saponins Steroids Tannin	[35]
<i>Annona muricata</i>	Annonaceae	Ata	Antiinflammatory Diabetics Liver diseases	Antimicrobial Antiinflammatory Antinociceptive Antioxidant Insecticide Larvicide Anticancer Wound healing Hepatoprotective Antidiabetic	Tannins Flavonoids Saponins Terpenoids Carbohydrates Monosaccharide Pentos Ketoses Starch Protein Arginine Cystine Aromatic amino acids Phenolic Amino acids Alkaloids Steroids Phenolics	[36]
<i>Aphanamixispolystachya</i>	Meliaceae	Pithraj	Astringent  Liver and spleen diseases  Rheumatism	Antimicrobial Antioxidant Thrombolytic Insecticidal Analgesic Antiulcer Anticancer Antirheumatic Hepatoprotective	Alkaloid Anthraquinones Cardiac glycosidesFlavon oids Tannins Terpenoids	[37]
<i>Argemoemexicana</i>	Papaveraceae	Shialkata	Antimalarial Diuretic Skindiseases Destroyworms	Antiproliferative Antifungal Antiinflammatory Analgesic Antidiarrheal Antihelminthic Antibacterial Antimalarial	Alkaloids Flavonoids Glycosides Phenol Lognin Saponins Sterols Tannins	[38]
<i>Averrhoa carambola L</i>	Oxalidaceae	Dumur	Chronic headache Fever Cough Diarrhea Ringworm infections	Antihyperglycemic Analgesic Antidiarrheal Antiinflammatory Antiulcer Antihelmintic	Alkaloids Flavonoids Phenols Proteinsglycoside s Tannins Saponins Steroids	[39]
<i>Azadirachta indica</i>	Meliaceae	Neem	Antidiabetic Skin diseases Antiinflammatory Fever	Wound healing Antiinflammatory Antipyretic Hepatoprotective Neuroprotective Immunomodulatory Antifertility Antidiabetic Cardioprotective	Alkaloids Steroids Saponin Tannin Flavonoids	[40]
<i>Baccaurearamiflora</i> Lour	Phyllanthaceae	Latkan	Antiinflammatory Rheumatoid arthritis To treat injuries	Antioxidant Analgesic Antiinflammatory Neuropharmacological Antidiarrheal Antirheumatic Wound healing	Glycosides Saponins Alkaloids Tannins Flavonoids Mucilage Carbohydrates Proteins Phytosterols	[41]
<i>Bacopa monnieri</i>	Plantaginaceae	Brahmi Shak ful	Memory enhancer Plant juice as cardiac tonic	Antiinflammatory Cardioprotective Antiulcerogenic	Tannin Phlobetannin Saponin	[42]

			Antimalarial	Analgesic Antidiarrheal Antidepressant Antinociceptive Antioxidant Antimalarial	Flavonoid Cardiacglycoside Phenol Steroid Alkaloid Carbohydrate	
<i>Baliospermum montanum</i>	Euphorbiaceae	Danti	Root as laxative Anthelmintic Diuretic	Anthelmintic Antibacterial Wound Healing Antioxidant Antiallergic Antiinflammatory Anticancer Hepatoprotective Diuretic	Alkaloid Carbohydrates Cardiac glycosides Flavonoids Protein Amino acids Phenols Saponins Steroids Tannin Terpenoids	[43]
<i>Bambusaarundinacea</i>	Poaceae	Baash	Cough Skin disease	Antiinflammatory Antiulcer Antidiabetic Antioxidant Anthelmintic Laxative Antimicrobial	Flavonoids Phenol Steroids Tannins Quinones	[44]
<i>Barleriapronitis</i>	Acanthaceae	Pitajhinti	Antiinflammatory Fever Toothache	Antimicrobial Antibacterial Antifungal Antioxidant Antidiabetic Antiinflammatory Antiarthritic Hepatoprotective Diuretic Antinociceptive Antidiarrheal	Alkaloid Flavonoids Saponins Tannin Phytosteroids Phenolic compounds Terpenoids Steroids	[45]
<i>Barringtonia acutangula</i>	Lecythidaceae	Hijol	To treat pain in body Abdominal disorder Cold Asthma	Antinociceptive CNS depressant Antidiarrheal Antimicrobial Antiinflammatory Antioxidant Antiarthritic Hypoglycemic	Carbohydrate Tannins Saponin Flavonoid Alkaloid Quinones Cardiac glycosides Terpenoids Triterpenoids Phenol Coumarins Steroids Phytosteroids	[46]
<i>Barringtonia racemosa</i>	Lecythidaceae	Samudrapha	Asthma Diarrhea Seed in ophthalmic problems	Antibacterial Antifungal Antiarthritic Antitumor Antinociceptive Antioxidant Antiinflammatory Analgesic Antidiarrheal	Sterols Phenols Flavonoids Essential oil Tannins Terpenoid Carbohydrate Cardiac glycosides Saponins Resins Alkaloids	[47]
<i>Basella alba</i>	Basellaceae	Puishak	Laxative	Antibacterial Antiinflammatory Hepatoprotective Antiulcer Antidepressant Skeletal Muscle Relaxant Laxative	Alkaloids Cardiac glycosides Saponins Diterpenes Phenols Tannins Flavonoids	[48]
<i>Bauhinia purpurea</i>	Leguminosae	Roktokanchon	Antiinflammatory Rheumatism Dysentery	Antiinflammatory Antiarthritic Thrombolytic	Carbohydrate Alkaloids Steroids	[49]

				Analgesic Antinociceptive Antipyretic Antimalarial Antimycobacterial Antifungal Antidiabetic Cardiac activity Hormone regulation Wound Healing Antioxidant Nephroprotective Antidiarrheal Antirheumatic	Sterols Glycosides Saponins Flavonoids Tannin Phenolic compounds Protein Amino acids Fixed oil	
<i>Blumealacera</i>	Asteraceae	Kukursung a	To treat inflammation	Antipyretic Analgesic Antiinflammatory Antioxidant Antidiarrheal Anxiolytic Antiatherothrombosi	Alkaloids Glycosides Phenolic compounds Tannin Flavonoids Proteins Amino acids Steroids Triterpene Fats and oils	[50]
<i>Boehmeria Macrophylla</i>	Urticaceae	JangliChott a	Tonic for treating boils	Antibacterial Analgesic Antimicrobial	Tannins Flavonoids Saponin Steroids Alkaloids Terpenoid	[51]
<i>Boerhaviadiffu sa</i>	Nyctaginaceae	Punarnava	Antiinflammatory Diuretic	Hepatoprotective Antiinflammatory Diuretic Antifungal Antibacterial Antimalarial Thrombolytic Antioxidant	Alkaloids Anthraquinones Cardiac glycosides Flavonoids Saponins Steroids Tannins Terpenoids	[52]
<i>Bombax ceiba</i>	Bombacacea	Shimul	To treat boils and acne	Antitumor Antimicrobial Antidiabetic Analgesic Antiinflammatory Hepatoprotective Antiangiogenic Antioxidant Antibacterial Hypotensive Anti-acne Cardioprotective Antipyretic	Carbohydrates pentose sugars Hexose sugars Non-Reducing sugars Amino acids Steroids Cardiac glycosides Alkaloids Flavonoids Tannins Phenol compounds	[53]
<i>Borassus flabellifer</i>	Arecaceae	Tal	Fruit in cough and pulmonary diseases	Antioxidant Analgesic Antipyretic Antiinflammatory Antihelminthic Antibacterial Antifungal Antiasthmatic Hypoglycemic	Saponins Quinones Cardiac glycosides Terpenoids Phenols Steroids Coumarins Beta-cyanin	[54]
<i>Brassica oleracea</i>	Brassicaceae	Badhakoop y	Antiinflammatory	Anticancer Antioxidant Antiinflammatory Hypolipidemic Hypoglycemic Anticoagulant	Carbohydrates Proteins Amino acids Alkaloids Steroids tannins Phenols Flavonoids Glycosides Saponins Terpenes	[55]



<i>Caesalpinia pulcherrima</i>	Leguminosae	Krishnachura	Antiinflammatory Diarrhea Dysentery Certain skin infection	Analgesic Antidiarrheal Antipyretic Antioxidant Antiinflammatory Antinociceptive Antitubercular Antibacterial Fungicidal	Alkaloids Carbohydrates Tannins Flavonoids Phenolic compounds	[56]
<i>Cajanus cajan</i>	Leguminosae	Tur	Leaves in food poisoning Diabetics Constipation	Antidiabetic Antimicrobial Antibacterial Hypocholesterolemic Neuroactive Antioxidant Anticancer Hepatoprotective Anthelmintic Glycemic	Flavonoids Tannins Alkaloids Saponins Cyanogenic glycoside Glycosides Anthocyanin	[57]
<i>Calotropis gigantea</i>	Apocynaceae	Akondo	Cough Dysentery	Antibacterial Antiinflammatory Insecticidal Hepatoprotective Analgesic Antiviral Anti-arthritic	Alkaloids Glycosides Tannins Saponins Flavonoids	[58]
<i>Calotropis procera</i>	Apocynaceae	Akond	Edema in pregnant woman Cough	Antioxidant Antibacterial Analgesic Antidiarrheal Antimicrobial Antinociceptive Anthelmintic Antiinflammatory Hepatoprotective Wound Healing Antiulcerative	Carbohydrate Gums and Mucilage Fats and oils Alkaloids Triterpenoids Steroids Flavonoids Glycosides Saponins Tannins Phenolic compounds Coumarins Proteins Amino acids	[59]
<i>Calycopteris floribunda</i>	Combretaceae	Goache-lata	Anthelmintic Astringent Dysentery Jaundice	Antimicrobial Anthelmintic Antibacterial Hepatoprotective	Alkaloids Carbohydrates Glycosides Phytosterols Fixed oils and fats Saponins Phenolic compounds Tannins Protein Amino acid Flavonoids	[60]
<i>Carica papaya</i>	Caricaceae	Papaya	Green fruit in treatment of high blood pressure  Constipation	Antimicrobial Anthelmintic Antimalarial Antifungal Antiamoebic Hepatoprotective Diuretic Immunomodulatory Histaminergic Wound Healing Antihypertensive	Saponins Alkaloids Tannins Glycosides Phenols	[61]
<i>Cocos Nucifera</i>	Arecaceae	Narkel	Leaf juice in diarrhea Oil to strengthen hair	Analgesic Antiviral Antihypertensive Antiinflammatory Antioxidant Antimicrobial Antidiabetic Antidiarrheal Antinioplastic Anthelmintic	Alkaloids Flavonoids Saponins Resin Tannins Steroids Terpenoids Glycosides Carbohydrates	[8]

				Antimalarial Antifungal		
<i>Commelinabenghalensis</i>	Commenlinaceae	Dholpata	Headache	Analgesic Sedative Anxiolytic Antimicrobial Antiinflammatory	Phlobatannins Carbohydrate Tannin Glycosides Volatile oils Resins Balsams Flavonoids Saponins	[62]
<i>Coriandrum sativum</i>	Apiaceae	Dhaniya	Insomnia Loss of appetite Pain in the joint	Antibacterial Antioxidant Antiinflammatory Anticancer Antinociceptive Antiedema Hypoglycemic Hypolipidemic Hepatoprotective	Sterols Saponins 2-Deoxy sugars Cardenolide Flavonoids Cyanidin Tannins Alkaloids Coumarins Carbohydrates Reducing sugars	[63]
<i>Costusspeciosus</i>	Costaceae	Khewa	In treatment of kidney stones	Antioxidant Hypolipidemic Antihyperglycemic Anticancer Antiinflammatory Antidiabetic Hepatoprotective Antimicrobial	Carbohydrates Alkaloids Tannins Saponins Steroids Flavonoids Anthorquinones Anthocyanates Protein	[64]
<i>Crataevanurvala</i>	Capparaceae	baruntiktoshak	Inflammation Gastric irritation Rheumatic fever Constipation	Nephroprotective Hepatoprotective Antiartritic Antiinflammatory Laxative Antidiabetic Antifertility Antinociceptive Anticancer	Alkaloids Saponins Tannins Flavonoids Phytosterols Triperpene	[38]
<i>Curcuma longa</i>	Zingiberaceae	Holud	Wound healing Hepatic disorder Rheumatism Skin diseases Cough	Antiinflammatory Antioxidant Antidepressant Anticancer Anticoagulant Antidiabetic Wound healing Antimicrobial Antiallergic Hepatoprotective	Alkaloids Tannins Phenolic compounds Terpenoids Phytosterols Flavonoids Saponins Glycosides Fixed oils Fatty acid	[65]
<i>Cuscutareflexa</i>	Convolvulaceae	Swarnalata	Jaundice Liver diseases Uterus and liver pain	Thrombolytic Antioxidant Membrane stabilizing Hepatoprotective Antimicrobial Antiinflammatory Anticancer	Alkaloids Flavonoids Terpenoids Fixed oils Phytosterols Phenolic compounds Fats Carbohydrates Proteins Glycosides Tannins	[66]
<i>Cyperus rotundus</i>	Cyperaceae	Nagarmutha	Eczema Tubers in treatment of constipation Pain reliever	Antiinflammatory Analgesic Antimicrobial Antioxidant Anti-urolithatic Antidiarrheal Antiobesity Wound Healing Antimalarial Antidiabetic Antiallergic Antiplatelet	Flavonoids Phenolic compounds Alkaloids Tannins Proteins Amino acids Steroids Anthraquinone Anthocyanin Saponins	[67]

				Hypolipidemic Laxative Gastro-protective Hepatoprotective Antifungal		
<i>Datura stramonium</i>	Solanaceae	Dhattura	Rheumatism Skin disorder Cough Pain reliever Asthma	Analgesic Antioxidant Antimicrobial Antidiabetic Antiinflammatory Antiasthma Anticancer Antifungal	Alkaloids Flavonoids Amino acids Tannins Saponins Carbohydrates Terpenoids	[68]
<i>Delonix regia</i>	Leguminosae	Radhachura	Fruits in treatment of piles Leaves applied in treatment of boils	Antidiabetic Antibacterial Antioxidant Antifungal Antiinflammatory	Carbohydrate Glycoside Tannins Protein Amino acids Flavonoids Sterol Triterpenoid	[69]
<i>Dendrophthoe falcate</i>	Loranthaceae	Bandah	Crushed whole plant in treatment of rheumatism Asthma Skin diseases	Antioxidant Antinociceptive Anticonvulsant Antimicrobial Antiinflammatory Antirheumatic	Carbohydrate Glycosides Steroids Tannins Phenolic compounds Flavonoids Saponins Triterpenes	[70]
<i>Derris trifoliata</i>	Leguminosae	Panlata	Aerial part as stimulant Diarrhea	Antidiarrheal Antiplasmodial Larvicidal Antinociceptive	Steroids Reducing sugar Gum Saponins Tannins Flavonoids	[71]
<i>Desmodium gangeticum</i>	Leguminosae	Chalani	Digestive track disorder Hepatic disorder Cardiovascular disorder	Immunomodulatory Antioxidant Hepatoprotective Antiinflammatory Antinociceptive Cardioprotective Wound Healing	Alkaloids Carbohydrates Phenols Flavonoids Terpenoids Tannins	[72]
<i>Drynaria quercifolia</i>	Polypodiaceae	Pankha	Stem juice in diabetics Fever Skin diseases	Antihyperglycemic Antipyretic Thrombolytic Antibacterial Analgesic Antiinflammatory CNS depressant Antidiabetic	Coumarins Flavones Lignans Phenolics Proteins Saponins Tannins Triterpenes	[73]
<i>Enhydra fluctuans</i>	Asteraceae	Helencha	Neurological disorder  Hepatic disorder Renal disorder  Leaves and stem juice in diabetics	Analgesic Antidiarrheal Antimicrobial Anticancer Hepatoprotective CNS depressant Antihelminthic	Flavonoids Triterpenes Carbohydrate Reducing sugars Saponins Phenols Diterpenes Proteins Tannins	[74]
<i>Erythrina variegata</i>	Leguminosae	Mandar ful	Bark in treatment of helminthiasis  Bark in eye treatment	Antibacterial Antioxidant Analgesic Antiinflammatory Antihelminthic CNS depressant Antipyretic Hypoglycemic	Alkaloids Flavonoids Tannins Phenolic compounds Amino acids Proteins Cardioglycosides Saponins Oils and Fats Steroids	[75]
<i>Eucalyptus camaldulensis</i>	Myrtaceae	Eucalyptus	Ulcer Fever Diphtheria	Antiulcer Antiinflammatory Analgesic	Tannins Saponins Glycosides	[76]

				Antidiarrheal Antifungal	Anthraquinones	
<i>Euphorbia royleana</i>	Euphorbiaceae	Thor	Skin diseases	Immunosuppressive Antiinflammatory Antioxidant Antimicrobial Antitumor	Alkaloids Glycosides Tannins Steroids	[53]
<i>Ficus hispida</i>	Moraceae	Dumoor	Diabetics Dermatitis	Antihyperglycemic Induce Apoptotic Antinociceptive Chemopreventive Anticancer Nephroprotective	Glycosides Carbohydrates Sterols Saponins Tannins Flavonoids	[77]
<i>Lawsonia inermis</i>	Lythraceae	Mehedi	Leaves in cancer, fever and to keep head cool	Antibacterial Antioxidant Anticancer Antiarthritic Analgesic Antidiarrheal Antipyretic Antiinflammatory Antiulcer Antitubercular Antimicrobial Antifungal Antifertility Hepatoprotective Hypoglycemic Antihyperglycemic Wound Healing Thrombolytic	Cardioglycosides Terpenoids Carbohydrates Phenols Quinones Tannins	[78]
<i>Leea indica</i>	Vitaceae	Kurkur	Leaf paste to treat painful joints Leprosy Eczema	Antioxidative antimicrobial Antitumor Analgesic Antiinflammatory	Alkaloids Glycosides Cardio glycosides Terpenoids Flavonoids Steroids Tannins	[79]
<i>Leucas aspera</i>	Lamiaceae	Dondokolosh	Leaf juice in tooth infection Leaf juice in headache	Antinociceptive Antihyperglycemic Antiinflammatory Antimicrobial Antibacterial	Alkaloids Flavonoids Carbohydrates Tannins Triterpenoids Glycosides Steroids Phenolic compounds Fixed oil and Fats Proteins Saponins	[80]
<i>Luffa acutangula</i>	Cucurbitaceae	Jhinga	Diuretic Leprosy	Hepatoprotective Antidiabetic Antihyperlipidemic Anticancer Antioxidant Analgesic Antiinflammatory Antibacterial Immunomodulatory CNS depressant Antiulcer Diuretic	Carbohydrates Proteins Amino acids Fixed oils Steroids Saponin Glycosides Flavonoids Phenols Vitamin C	[81]
<i>Luffa cylindrica</i>	Cucurbitaceae	Dhundul	Emetic Cathartic Demulcent	Antioxidant Antibacterial Antiinflammatory Antimicrobial Bronchodilator Antiemetic Antihemorrhoids	Saponins Flavonoids Glycosides Terpenoids Alkaloids	[82]
<i>Madhuca longifolia</i>	Sapotaceae	Mahua	Skin diseases Rheumatism Antiulcer Fruit pulp in treatment of diarrhea	Antioxidant Antimicrobial Antiinflammatory Analgesic Antiulcer	Phytosterols Triterpenes Glycosides Saponins Tannins	[83]

				Immunosuppressive Antihyperglycemic Hepatoprotective Wound healing Antirheumatic Antinociceptive Antidiarrheal	Carbohydrates	
<i>Mangifera indica</i>	Anacardiaceae	Aam	Leaves and stem in treatment of dysentery	Antioxidant Antiinflammatory Immunomodulatory Antiallergic Antihelminthic Antidiabetic Anticancer Antifungal Antibacterial Antidiarrheal	Flavonoids Tannins Alkaloids Terpenoids Steroids Saponins Anthraquinone	[84]
<i>Manilkara zapota</i>	Sapotaceae	Sopheda	In treatment of Jaundice Vitamin supplement	Antiinflammatory Antipyretic Antiarthritic Antidiabetic Antilipidemic Hepatoprotective	Phenols Reducing sugars Flavones Glycosides Saponins Alkaloids Proteins Tannins	[85]
<i>Micheliachampaca</i>	Magnoliaceae	Champa	Chronic headache	antioxidant Analgesic Antifungal Antidiabetic	Alkaloids Saponins Tannins Glycosides Carbohydrates Flavonoids Sterols Amino acid	[86]
<i>Mikania cordata</i>	Asteraceae	Asaam lota	To stop bleeding Arthritis Liver disorder	Antimicrobial Antinociceptive Antiinflammatory Antipyretic Antibacterial Anticarcinogenic Antiulcer Antihemorrhagic	Alkaloids Steroids Gums Tannins	[87]
<i>Mikania cordifolia</i>	Asteraceae	Refusilata	Wound healing	Analgesic Antioxidant Antiinflammatory Antipyretic Wound healing	Tannins Flavonoids Saponins Gums	[87]
<i>Mikania micrantha</i>	Asteraceae	Ashamludi	Leaf paste is used in wound healing	Antiinflammatory Antioxidant Antidiabetic Antidermatophytic Antiproliferative Anticancer Antihelminthic Antiviral Antispasmodic	Alkaloids Reducing sugar Flavonoids Saponins Phenolic compounds Tannins Amino acids Proteins	[88]
<i>Mimosa pudica</i>	Leguminosae	Lajjaboti	Toothache Antiinflammatory Jaundice	Antioxidant Antibacterial Antimicrobial Hepatoprotective Analgesic Antiepileptic Anticonvulsant Antiinflammatory Antidiabetic Antihelminthes Antifertility	Terpenoids Flavonoids Glycosides Alkaloids Quinines Phenols Tannins Saponins Coumarins	[89]
<i>Mimosa pudica</i>	Sapotaceae	Bakal	Seed in dental diseases Roots as diuretics	Antioxidant Antihyperglycemic Antibacterial Antifungal Antitumor Analgesic Antipyretic Diuretic	Carbohydrates Proteins Glycosides Flavonoids Tannins Steroids Terpenoids Saponins	[90]

<i>Momordica charantia</i>	Cucurbitaceae	Karala	Leaves in treatment of diabetics Chicken pox	Antidiabetic Anticancer Antiinflammatory Analgesic Antimicrobial Antioxidant	Glycosides Phytosterols Proteins Alkaloids Flavonoids Phenolic compounds Tannins Saponins Fats and fixed oils	[91]
<i>Moringa oleifera</i>	Moringaceae	Shajna	Stems in treatment of rheumatism Flower in treatment of chicken pox	Anticancer Analgesic Antiinflammatory Antipyretic Antioxidant Hepatoprotective Gastroprotective Antiulcer Antiobesity Antiepileptic Antidiabetic Anti-urolithiatic Diuretic	Tannins Saponins Flavonoids Terpenoids Reducing sugars Alkaloids Anthraquinones	[92]
<i>Murrayapanic ulata</i>	Rutaceae	Kamini	Helminthiasis Liver disease Rheumatoid arthritis	Antioxidant Antimicrobial Analgesic Antiinflammatory Antihelminthic Antinociceptive Antirheumatic Hepatoprotective	Alkaloids Carbohydrates Glycosides Steroids Saponins Tannins Fixed oil and fats Proteins Cardiac glycosides Flavonoids Quinones Coumarins	[93]
<i>Neolamarckiac adamba</i>	Rubiaceae	Cadam	Antidiuretic Fever Cold	Antidiabetic Antioxidant Antiproliferative Antimicrobial Antiinflammatory Analgesic Antilipidemic Antihelminthic Antipyretic Laxative Antiepileptic	Carbohydrates Glycosides Phytosterols Proteins Amino acids Terpenes	[94]
<i>Olea europaea</i>	Oleaceae	jolpie	Fruits in heart diseases Skin cleanser	Antiradical Antioxidant Antiproliferative Antihypertensive Antimicrobial Antihyperglycemic Cardioprotective Neuroprotective	Flavonoids Saponins Unsaturated sterols Terpens Sterol Steroids	[95]
<i>Oroxylum indicum</i>	Bignoniaceae	Khona	Urinary tract infections Heart diseases	Antiproliferative Antiinflammatory Antioxidant Antimicrobial Analgesic Anticancer Cardioprotective	Flavonoids Saponins Alkaloids Sterols Tannins Phenolic compounds Terpenoids	[96]
<i>Paederiafoetida</i>	Rubiaceae	Gondhobala	Tonic Rheumatoid arthritis	Antinociceptive Antimicrobial Antidiarrheal Antioxidant Antiinflammatory Antirheumatic	Alkaloids Phytosterols Fixed oils and fats Phenolic compounds Flavonoids Volatile oils	[97]
<i>Pandanus fascicularis</i>	Pandanaceae	Keora	Leaves in asthma and cold	Antioxidant Antiinflammatory Analgesic	Alkalkoids Steroids Terpenoids	[98]

				Antihyperglycemic	Phenols Glycosides Carbohydrates Proteins Flavanoids Saponins Tannins	
<i>Pandanus foetidus</i>	Pandanaceae	Keya-kanta	Skin diseases Small pox Scabies	Neuropharmacological Antidiarrheal Antinociceptive Antibacterial	Alkaloids Steroids Flavonoids Tannins Gums Reducing sugars Glycosides	[99]
<i>Phyllanthus emblica</i>	Phyllanthaceae	Amla	Dysentery Cholera Gastric problems	Antimicrobial Antioxidant Laxative Antiinflammatory Antidiabetic Antidiarrheal Analgesic Hepatoprotective Anti-proliferative Immunomodulatory Anticancer Cardioprotective Anti-tussive Gastroprotective Neuroprotective	Reducing sugars Carbohydrates Glycosides Flavonoids Alkaloids Tannins Phenols Terpenoids Steroids Saponins Plobatannins Anthraquinones Proteins Amino acids Coumarins Lactones Cardenolides Vitamin C	[29]
<i>Piper betle</i>	Piperaceae	Paan	Toothache Lowers blood sugar Aid in digestive process	Antibacterial Antifungal Gastroprotective Antioxidant Antimicrobial Antiinflammatory Analgesic Immunomodulatory Antiulcer Antihistaminic	Steroids Diterpenes Tannins Cardiac glycosides Flavonoids Alkalkoids Phenols Emodins Coumarins Saponins	[100]
<i>Polyalthiasuberosa</i>	Annonaceae	Murmuri	Rheumatism Various skin infections	Analgesic Antiinflammatory Antibacterial Antidiarrheal Antioxidant CNS depressant	Carbohydrates Reducing sugars Tannins Flavonoids Saponins Steroids Alkaloids	[101]
<i>Rauwolfia serpentine</i>	Apocynaceae	Sharpagandha	Root juice in hypertension	Anti-diarrhoeal Anti-hypertensive Hyperglycemic Haematinic Antioxidant Hepatoprotective	Alkaloids Carbohydrates Flavonoids Glycosides Cardiac glycosides Phlobatannins Resins Saponins Steroids Tannins Triterpenoids Phenols	[102]
<i>Richardia scabra</i>	Rubiaceae	Riim-raaz	Tonic Asthma Emetic Dermatitis	Antiinflammatory CNS depressant Antimicrobial Neuropharmacological	Alkaloids Tannins Flavonoids Steroids Terpenoids Simple sugars Furanoid Fatty acids	[103]
<i>Saraca indica</i>	Leguminosae	Ashoka	Antiinflammatory	Anticancer Anti-	Carbohydrates Flavonoids	[104]

				inflammatory Antihelminthic Cardio protective Antidiabetic CNS depressant Analgesic Antipyretic Antihyperglycemic Antioxidant Anti-ulcer	Saponins Phenols Tannins Glycosides Steroids	
<i>Schleichera oleosa</i>	Sapindaceae	Kusum gachh	Oil in skin problems like acne, itching  To relieve pain of rheumatism	Antiproliferative Antioxidant Antimicrobial Antihelminthic Antidiabetic Anti-arthritis	Carbohydrates Glycosides Alkaloids Saponins Phenolic compounds Tannins Flavonoids Phytosterols Gums and mucilage	[105]
<i>Scoparia dulcis</i>	Plantaginaceae	Bon-dhonya	Leaf juice in diabetics	Analgesic Antidiabetic Antibacterial Antifungal Antioxidant	Alkaloids Flavonoids Carbohydrates Saponins Sterols Tannins	[106]
<i>Sesbania grandiflora</i>	Leguminosae	Buko	Eye diseases Dermatitis Small pox	Antiulcer Antioxidant Antiuroliathatic Hepatoprotective Anticancer Chemopreventive Anticonvulsive Anxiolytic Antimicrobial Analgesic Antidiabetic Antipyretic	Carbohydrates Alkaloids Steroids Glycosides Saponins Tannins Proteins Amino acids	[107]
<i>Sidarhombifolia</i>	Malvaceae	Svetbarela	Antiinflammatory To build immunity	Antibacterial Antiinflammatory Antioxidant Immunomodulatory	Carbohydrates Alkaloids Saponins Fixed oils and fats Flavonoids Proteins Gums and mucilage Phenolic compounds Tannins Terpenoids Glycosides	[108]
<i>Solanum torvum Swartz</i>	Solanaceae	Titabagoon	Leave in skin infection	Antimicrobial Antioxidant Analgesic Antiinflammatory Antiviral Anti-platelet aggregation	Tannins Flavonoids Reducing sugars Saponin glycosides Alkaloids Phytosteroids Terpenoids	[109]
<i>Sonneratia apetala</i>	Lythraceae	Keora	Fruits in diabetics	Antioxidant Antidiabetic Antibacterial Analgesic Antidiarrheal Antihelminthic	Alkaloids Cardiac glycosides Anthraquinone glycosides Tannins Steroids Flavonoids Gums and mucilages Carbohydrates Proteins Amino acid Terpenoids	[110]



<i>Sonneratiacaseolaris</i>	Lythraceae	Choilani	Antidiabetic Astringent Antiseptic	Antihyperglycemic Antimicrobial Antioxidative Bactericidal	Alkaloids Carbohydrates Sterols Glycosides Saponins Phenolic compounds Flavanoids	[111]
<i>Sterculia villosa</i>	Malvaceae	Udal ful	To treat rheumatism	Antiinflammatory Antidiabetic Antihelminthic Diuretic Immunomodulatory Analgesic	Steroids Triterpenes Saponins Triterpinoidal Saponins Alkaloids Carbohydrates Flavonoids Tannins Glycosids Polypheols	[112]
<i>Syzygiumcumini</i>	Myrtaceae	Kalojam	Bark in sore throat, bronchitis, asthma and dysentery	Hypoglycemic Hypolipidemic Antiinflammatory Antibacterial Anticancer Antioxidant Antiallergic Hepatoprotective Antipyretic	Alkaloids Flavonoids Saponins Tannins Glycosides Phenols Proteins Triterpenoid Steroids Fixed oils and fat	[113]
<i>Syzygiumsamarangense</i>	Myrtaceae	Jamrul	Diabetics Leaf juice in cold and waist pain	Antihyperglycemic Analgesic Antiinflammatory Antidepressant Antioxidant Hepatoprotective Antihelminthic Antidiabetic	Alkaloids Carbohydrates Saponins Tannins Phenolics Amino acids Flavonoids Terpenoids Phenolic compounds	[114]
<i>Tamarindus indica</i>	Leguminosae	Tatul	Abdominal pain Dysentery Parasitic infection	Antibacterial Antioxidant Antiinflammatory Antinociceptive Antitumor Antidiabetic Hepatoprotective Wound Healing Anticancer	Alkaloids Flavonoids Tannins Amino acids Carbohydrates Phenols Triterpenoids Proteins Saponins Resins Phytosterols	[115]
<i>Terminalia arjuna</i>	Combretaceae	Arjun	In heart diseases	Cardioprotective Antiischemic Antihypertensive Antioxidant Anticancer Antibacterial Antifungal Antiplatelet	Phytosterols Triterpenoids Saponins Alkaloids Carbohydrates Flavonoids Lactones Phenolic compounds Tannins Proteins Glycosides	[116]
<i>Terminalia bellerica</i>	Combretaceae	Horitoki	Stimulation of appetite  Hair loss  In treatment of intestinal worms	Antioxidant Antimicrobial Antidiarrheal Anticancer Antihypertensive Antihelminthic Hepatoprotective Antipyretic	Alkaloids Flavonoids Steroid Glycosides Saponins Phenols Tannins	[117]
<i>Terminalia chebula</i>	Combretaceae	Bohera	Stimulation of appetite,  Digestive aid and	Antiinflammatory Antibacterial Antimicrobial Anti-ulcer	Alkaloids Flavonoid Quinines Phenolic	[118]

			acidity		compounds Tannin Glycosides	
<i>Abelmoschus esculentus</i>	Malvaceae	Derosh	Gastric ulcer Leaves in tumor treatment	Analgesic Antidiarrheal Antiinflammatory Antihyperlipidemic Antidiabetic Anti-fatigue Gastroprotective Immunomodulatory Antioxidant Anticancer Anti-adhesive Antibacterial Antitumor Laxative CNS depressant	Tannin Steroids Flavonoids Saponins Alkaloids Anthraquinone Phenols Resin Terpenoids Cardiac Glycosides	[119]
<i>Abroma augusta</i>	Malvaceae	Ulantkamبال	Antifertility Uterine tonic	Antimicrobial Antiinflammatory Antifungal Antibacterial Insecticidal Antidiabetic	Alkaloid Carbohydrate Flavonoids Tannin	[120]
<i>Abrus precatorius</i>	Leguminosae	Josthimodhu	Bronchitis	Antiinflammatory Antioxidant Antiproliferative Antifertility Antispasmodic Antidiabetic Anti-serotonergic Larvicidal Antibacterial Anticancer Antimicrobial Anti-migraine Antiallergic	Saponin Tannin Triterpenes Alkaloids Flavonoids Glycosides	[121]
<i>Abutilon indicum</i>	Malvaceae	Potari	To treat infection	Antimicrobial Antiinflammatory Analgesic Antidiabetic Antipyretic Hepatoprotective Antidiarrheal Anti-ulcer	Flavonoids Terpenes Amino acid Aldehyde Hydrocarbon Ketone Fatty acid Esters	[122]
<i>Acacia auriculiformis</i>	Leguminosae	Akashmoni	Antimalarial	Antioxidant Antimalarial Antimutagenic Chemopreventive Hepatoprotective Antidiabetic Wound healing Memory enhancing CNS depressant Antimicrobial	Alkaloid Flavonoids Tannins Steroids Triterpenoids Fats Saponin glycosides	[123]
<i>Acacia catechu</i>	Leguminosae	Kharir	Bark as cure for cold and cough  To cure tongue and mouth ulcer  In combination with opium to cure diarrhea	Antidiabetic Antioxidant Antiinflammatory Chemopreventive Antibacterial Antifungal Anticancer Antidiarrheal Antimicrobial Antipyretic Sore throat Wound healing Anti-ulcer	Catechutannic acid Acacatechin Tannic acid Quercetin Catechu-red Epicatechin	[124]
<i>Acacia nilotica</i>	Leguminosae	Babul	Gastroprotective Anti-asthmatic Liver tonic Branches in teeth cleaning	Antiinflammatory Antipyretic Analgesic Antioxidant Antidiarrheal Antihelminthic Antihypertensive Antispasmodic	Saponin glycosides Hydrolysable tannin Triterpenoid Tannin Flavonoids	[125]

				Antibacterial Antifungal Anti-platelet Antidiabetic Hypolipidemic Anticancer Antimutagenic Anti-plasmodial Anti-asthmatic Gastroprotective	Phenol Alkaloid	
<i>Acalypha indica</i>	Euphorbiaceae	Mukta jhuri	Respiratory problems Anti-parasite	Analgesic Antiinflammatory Diuretic Antihelminthic Wound healing Antibacterial Antiasthmatic	Alkaloids Catachols Flavonoids Phenolic compounds Saponins Steroids	[41]
<i>Acanthus ilicifolius</i>	Acanthaceae	Hsargoza	Asthma Paralysis of limb Snake bite  Diabetics Rheumatoid arthritis	Antioxidant Hepatoprotective Antiallergic Antihelminthic Antiinflammatory Antimicrobial Anticancer Antileishmanal Osteoblastic Antiulcer Antidiabetic Antirheumatic Antiasthmatic	Saponins Tannin Terpenoids Flavonoids Alkaloids Anthraquinones	[126]
<i>Acorus calamus</i>	Acoraceae	Bach	Antidiabetic To promote memory Cough Asthma	Antifungal Anti-yeast Antioxidant Anti-cellular Immunosuppressive Antitumor Antiinflammatory antidiabetic	Alkaloids Flavonoids Phenolic compounds Tannins Glycosides Amino acids Protein Steroids Terpenoids Carbohydrates Oil and Fats Saponins Organic acids Inorganic acids	[127]
<i>Acrostichum aureum</i>	Pteridaceae	Lagolo	To treat wound Peptic ulcer	Antitumor Wound Healing Antidiarrheal Antioxidant Analgesic Antiinflammatory	Amino acids Glycosides Steroids Triterpinoids Saponins Flavonoids	[128]
<i>Adiantum philippense</i>	Pteridaceae	Goyalelata	Cold and cough Fever Digestive disorder	Thrombolytic Antioxidant Antiinflammatory Analgesic Antinociceptive	Tannin Flavonoids Steroid Anthocyanin Emodins Alkaloids Phenols Terpenoid Glycosides Anthraquinones	[129]
<i>Aegicerascorniculatum</i>	Primulaceae	Kholisha	Asthma Fish poison Diabetics Rheumatism	Antiinflammatory Antioxidant Hepatoprotective Antidiabetic Antirheumatic	Alkaloids Glycosides Steroids Flavonoids Saponins Tannins	[130]
<i>Aegle marmelos</i>	Rutaceae	Bhel	Diarrhea Dysentery Peptic ulcers Laxative	Anti-proliferative Antiulcer Hypoglycemic Antioxidant Anticancer Antidiarrheal	Alkaloids Proteins Amino acids Glycosides Flavonoids Tannins Steroids	[131]

					Phenols	
<i>Ageratum conyzoides</i>	Asteraceae	Wila	Urinary tract infections Analgesic	Antinociceptive Antioxidant Analgesic Antiinflammatory Antibacterial Wound Healing Radioprotective Anthelmintic Nematicidal	Alkaloids Flavonoids Tannins Saponins Glycosides Steroids Cumarins Charomones Terpenoids Resins Cardenolides Phenols	[133]
<i>Alocasia indica</i>	Araceae	Mankachu	Antiinflammatory Astringent Leaves as diuretics	Antiinflammatory Analgesic Antimicrobial Antidiabetic Antioxidant Antidiarrheal Antibacterial Diuretic	Alkaloids Tannins Saponins Steroids Phloba-tannins Terpenoids Flavonoids Cardiac glycosides	[134]
<i>Alstoniascholaris</i>	Apocynaceae	Chattim	Diarrhea Epilepsy Skin diseases Snakebite	Antimicrobial Antiinflammatory Analgesic Antimalarial Anticancer Anti-tussive Anti-Asthmatic Antidiarrheal Anticonvulsant	Alkaloids Flavonoids Amino acid Carbohydrates Phenolic compound Terpenoids Cardiac glycosides Oil and Fats Steroids and Sterols	[135]
<i>Carissa carandas</i>	Apocynaceae	Karamcha	Anthelmintics	Antinociceptive Antipyretic Analgesic Antiinflammatory Antioxidant Antidiabetic DNA damage inhibition Anti-convulsant Sedative Hepatoprotective Diuretic Cardiovascular Antiulcer Anti-cancerous Anthelmintic Antimalarial	Alkaloids Flavonoids Saponins Cardiac glycosides Triterpenoids Phenolic compounds Tannins	[24]
<i>Cassia fistula</i>	Leguminosae	Sonali	Mild laxative	Antiinflammatory Antioxidant Hepatoprotective Antibacterial Antifungal Antitumor Laxative	Alkaloids Carbohydrates Tannins Phenolic compounds Glycosides Protein Amino acids Flavonoids Saponins Triterpenoids Anthraquinone	[136]
<i>Cassia occidentalis</i>	Leguminosae	Kalkasunde	Antibacterial Antifungal Antidiabetic Anti-inflammatory	Antibacterial Antimutagenic Antifungal Antidiabetic Antimicrobial Antimalarial Antiinflammatory Analgesic Anticancerous Hepatoprotective	Tannins Cardiac glycosides Saponins Anthraquinone	[137]
<i>Cassia sophera</i>	Leguminosae	Tankai	In vomiting tendency Antidiabetics	Antiinflammatory Antihyperglycemic Analgesic	Carbohydrates Anthorquinones Alkaloids	[138]

				Anticonvulsant Antiasthmatic Antidiabetic Antiemetic	Flavonoids Steroids Triterpenoids Tannins Phenolic compounds	
<i>Catharanthus roseus</i>	Apocynaceae	Nayantara	Leaf juice in diabetics, Leukemia, Helminthiasis	Anticancer Antidiabetic Wound healing Antioxidant Antihelminthic	Alkaloids Terpenoids Phenols Tannins Saponin Quinines Proteins	[139]
<i>Centella asiatica</i>	Apiaceae	Thankuni	Leaf juice in diarrhea and gastric problems	Neuroprotective Nerve-regenerative Immunomodulatory Anti-depressive Antiinflammatory Antioxidative Anti-cancer Antimicrobial Wound Healing Cardioprotective Antidiabetic Gastroprotective	Alkaloids Carbohydrate Flavonoids Glycosides Saponins Steroids Tannins Terpenoids	[140]
<i>Cerberaodollam</i>	Apocynaceae	Dabur	Laxative	Antioxidant Antimicrobial Thrombolytic Laxative Membranstabilizing Antinociceptive Sedative Anticancer Antibacterial CNS depressant	Alkaloids Phenol Steroids Tannins Terpenoids	[141]
<i>Ceriopsdecandra</i>	Rhizophoraceae	Jaliagaran	Gastrointestinal disorder Snakebites Inflammation	Antioxidant Antiinflammatory Antidiarrhoeal Antidiabetic	Protein Carbohydrate Phenols Saponins Glycosides Terpenoid Alkaloids	[142]
<i>Clerodendruminerve</i>	Lamiaceae	Banajai	Fever Skin diseases Asthma	Analgesic Antiinflammatory Antinociceptive Antioxidant Anticancer Antibacterial Antifungal Hypotensive Anti-asthmatic Hepatoprotective Antipyretic Antidiabetic	Alkaloids Phenol Tannins Steroids Protein Diterpene Terpenoids Flavonoids Flavanones Quinones	[143]
<i>Clerodendruminfortunatum</i>	Lamiaceae	Bhant	Leaf juice in dysentery Antihelminthic Skin diseases	Antihelminthic Analgesic Anticonvulsant Antiinflammatory Antioxidant Antibacterial Antidiabetic	Alkaloids Sterols Terpenoid Carbohydrate Tannin Glycoside Saponin Proteins Amino acids	[144]
<i>Clitoriaternatea</i>	Leguminosae	Oporajita	Snake bite Indigestion Tumor	Anti-allergy Anti-tussive Antioxidant Antihelminthic Anti-asthmatic Anti-histaminergic Analgesic Antitumor Antipyretic Antiinflammatory	Alkaloids Tannins Glycosides Resins Flavonoids Anthraquinones	[145]
<i>Coccinia grandis</i>	Cucurbitaceae	Telakuha	Root juice in mental diseases	Membranstabilizing Antidiabetic	Alkaloid Flavonoids	[146]

			Whole plant in diabetic treatment	Thrombolytic Antioxidant Antimicrobial Anthelmintic Hepatoprotective Antidyslipidemic Antiinflammatory Analgesic Antipyretic Anti-ulcer	Saponin Carbohydrate Gums andMucilage Phenol Tannins Terpenoids Protein Steroids Glycosides Phlobatannins	
<i>Ficus racemosa</i>	Moraceae	Joggodumum r	Fruit in treatment of diabetics Liver condition Inflammation Diarrhea	Hypolipidemic Hypoglycemic Antifungal Antibacterial Antidiarrheal Wound Healing Antioxidant Anthelmintic Hepatoprotective Antidiabetic	Carbohydrates Glycosides Proteins Amino acids Phenolic compounds Tannins Phytosterols Saponins Gums and Mucilage	[147]
<i>Flemingiapani culata</i>	Leguminosae	Udumbara	To induce sleep To reduce pain	Antibacterial Antifungal Analgesic Antiinflammatory	Carbohydrates Glycosides Proteins Amino acids Phenolic compounds Tannins Phytosterols Saponins Gums and Mucilage	[148]
<i>Garcinia mangostana</i>	Guttiferae	Tamal	To treat inflammation To treatdiarrhea	Antioxidant Anthelmintic Antiinflammatory Analgesic Anticancer	Alkaloids Flavonoids Tannins Saponins Triterpenoids	[149]
<i>Heliotropium indicum</i>	Boraginaceae	Hatisur	Antidote to poisoning Leaf paste in bone fracture	Antimicrobial Thrombolytic Membrane stabilizing Antioxidant Antibiotic Wound Healing Gastroprotective Antiinflammatory Antitumor Muscle relaxant	Alkaloids Carbohydrates Glycosides Phytosterols Phenolic compounds Tannins Saponins Proteins Amino acids Flavonoids	[150]
<i>Hemidesmus indicus</i>	Apocyanaceae	Anantamul	Urinary tract infection  Leavesin treatment of skin infections	Antidiabetic Antibacterial Antiinflammatory Antipyretic Antioxidant Antiarthritic Anticancer Anti-cataractous Antihepatocarcinogenic	Steroids Triterpenes Alkaloids Carbohydrates Flavonoids Tannins Glycosides Polyphenols	[151]
<i>Heritiera fomes</i>	Malvaceae	Sundri	Bark in diabetics In treatment of gastrointestinal disorder	Antioxidant Antimicrobial Antiobesity Antihyperglycemic Antinociceptive Antidiabetic	Reducing sugars Saponins Alkaloids Glycosides Tannins Steroids Flavonoids Gums	[13]
<i>Holarrhenaant idysenterica</i>	Apocyanaceae	Kurchi	Antidiarrheal In treatment of Jaundice	Antidiabetic Antidiarrheal Antiinflammatory Analgesic Antioxidant Anti-urolithic CNSstimulant Anthelmintics Antibacterial	Carbohydrates Alkaloids Proteins Amino acids Tannins Phenolic compounds Steroids Saponins	[152]

				Anti-mutagenic Hepatoprotective		
<i>Justicia gendarussa</i> Burm	Acanthaceae	Jagatmadan	Leaf juice in bone fracture and rheumatic pain	Antioxidant Antiarthritic Antihelminthic Analgesic Antiinflammatory Anti-anxiety Antiangiogenic Hepatoprotective Antibacterial Anticancer Osteoblastic	Glycosides Tannins Phenolic compounds Terpenoids Flavonoids	[153]
<i>Kaempferia galangal</i>	Zingiberaceae	Ekangi	Toothache Anti-dandruff	Antinociceptive Antiinflammatory Antioxidant Antineoplastic Larvicidal Analgesic Antimicrobial	Sterols Triterpenoid Alkaloids Saponins Flavonoids Carbohydrates Resins Proteins	[154]
<i>Kalanchoe pinnata</i>	Crassulaceae	Patharkuchi	Blood dysentery Kidney and gall bladder stone	Antinociceptive Analgesic Antiinflammatory Antileishmaniotic Antimicrobial Antibacterial Antitumor Hepatoprotective Immunosuppressive Neuropharmacological Antidiabetic Nephroprotective	Carbohydrates Proteins Amino acids Alkaloids Glycosides Flavonoids Tannins Phenolics Steroids Anthraquinone Saponins Triterpenoids Phlobatannins	[155]
<i>Lagerstroemia speciosa</i>	Lythraceae	Jarool	Bark in treatment ofdiabetics Seed in treatment ofdiarrhea	Antinociceptive Antioxidant Antibacterial Antiviral Antiinflammatory Antidiarrheal Anti-fibrotic Antidiabetic	Saponins Tannins Alkaloids Sterols Glycosides Flavonoids	[156]
<i>Lanneacoroma delica</i>	Anacardiaceae	Jiola	Bark in chronic dysentery Bark and root in treatment of diabetics	Antihyperglycemic Antioxidant Antimicrobial Thrombolytic Antidiabetic	Carbohydrates Steroids Alkaloids Cardiac glycosides Terpenoids Tannins Flavonoids	[157]
<i>Lantana camara</i>	Verbenaceae	Chaturaangi/ Jangoli-janglog	Whole plant in cough, mental diseases, fever  Leaf and root in treatment of malaria tumor, tetanus	Hepatoprotective Antioxidant Antibacterial Wound Healing Antioxidant Larvicidal Antifertility Antifungal Antidiabetic Antiinflammatory Anti-nociceptive Antimotility Anticancer	Proteins Amino acids Carbohydrates Alkaloids Saponins Phenols Tannins Flavonoids Steroids	[158]
<i>Lasia spinosa</i>	Araceae	Bonadi, Kalo kata	Blood purification Rheumatoid arthritis	Anti-nociceptive Antidiarrheal Antiinflammatory Antioxidant Antimicrobial Anti-arthritic	Alkaloids Carbohydrates Fats and oils Flavonoids Glycosides Proteins Saponins Tannins	[159]

## II. Discussion

In this report, more than 100 plants screened for their local use, pharmacological and initial phytochemical activity. From the table, its reported Leguminosae family mostly contributes to the number of plants.

From the table, it has been seen that most the plants activities are consistent with their pharmacological activities. Most commonly found activity in the plants was antiinflammatory activity. About 119 of the plant showed antiinflammatory activity.

Antidiabetic activity was found in 75 of the plants. Among the plants *Catharanthus roseus* known as Nayantara in Bangladesh; leaves are used to treat diabetics. Pharmacological activity screening exhibited activities like analgesic, CNS depressant, antimicrobial, hepatoprotective, Antidiarrheal, anticancer, antihelminthic activities.

*Aegle marmelos* locally known as Bhel is traditionally used to peptic ulcer. *Acrostichumaureum* is locally known as lagelo andwound healing activity is established by pharmacological screening.

The antiulcer activity is evaluated by the extract of *Pouzolziazeylanica* was tested into skin ulcer induced rats. *Pouzolziazeylanica* remarkably decrease the ulcer activity and increased healing in rats [160].

*Datura stramonium*, *Madhucalongifoli*, and *Sterculia villosa* are traditionally used in rheumatism but yet to find any scientific data to prove antirheumatic activity.

In addition, *Averrhoa carambola* L known as dumur is traditionally used as Antiulcer and antihelminthic agent [39]. The leaf extract of *Catharanthus roseus* is used in kabirajee for treatment of helminthiasis.

*Thespesia lampas* mixed with the stem extract of *Costusspeciosus* used in Bangladesh to treat kidney stones. Phytochemical investigation of the plant showed the presence of carbohydrates, tannins, alkaloids, steroids, Saponins, flavonoids, proteins, anthroquinones[64]. Patriscabratine, tetracosane from *Acrostichumaureum* are found to be cytotoxic. So *Acrostichumaureum* may provide new potential for anticancer drug.

## III. Conclusion

The medicinal plants of Bangladesh can be evaluated as prospective source of drugs. The traditional use, pharmacological and phytochemicals studied of the plants of Bangladesh shows the wealthiness of the medicinal plants of Bangladesh. They can be suggested that medicinal plants of Bangladesh would be encouraging new and useful source for pharmaceutical use and source of drugs.

There are plenty of plants that need validation of their traditional use. Validation of these plants may also lead to discovery of new compounds for drug designing. So as to screen a great many plant species at one go for as many bioassays could be expected under the circumstances, should have an accumulation of an extensive number of extracts. There is a need to manufacture natural products extract libraries with different points of interest. For example, decrease in cost and time for accumulation of plants and accessibility of properly protected extract in vast numbers for natural screening as far as high-throughput screenings inside a brief period.

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