



# **Ethnobotanical Studies of Jessore Wildlife Sanctuary, Banaskantha, Gujarat, India**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

Several plant species found in the Jessore Wildlife Sanctuary benefit the local inhabitants. Resident knowledge and uses of the flora in the refuge were studied through interviews. The study discovered that locals use plants for a range of purposes, including food, medicine, fuel, fodder, and building materials. Plants are also used in rituals and ceremonies. Dabhi, Solanki, Parghi, Bubadiya, Bhemiyat, Dharangi, Gamar, Parmar, Rohisa, Damor, Khermal, and Kodarvi are among the many ethnic groups that reside in the forest areas. It is observed that important plants like *Terminalia Chebula*, *Phyllanthus emblica*, *Cassia fistula*, and *Moringa oleifera* may be used to cure many diseases. The most commonly used plant parts for curing disease are leaves, followed by fruits, seeds, bark, stems, and flowers. The poll also revealed a reduction in people's plant knowledge. Some of the factors that have contributed to this are deforestation, urbanisation, and the adoption of new technologies.

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## 1. INTRODUCTION

Medical ethnobotany studies the traditional applications of Indian medicinal plants. Since ancient times, India has used plants to treat disease and maintain health [1]. Today, millions of people still rely on these plants as vital components of traditional medicine and health care. 70% of rural Indians are thought to use traditional plant-based medicines as their main source of healthcare [2]. The benefits of floral diversity to health care across civilizations have been widely recognised [3]. Over 50,000 species, representing over 13% of flowering plants, are reportedly used for medical purposes worldwide, according to [4]. According to the World Health Organisation [5], 80% of people in developing nations solely use traditional medicines. They use medical procedures for their minor ailments or health care [14-16]. On the ethno-medical usage of plants in the Jessore Wildlife Sanctuary, there is insufficient knowledge [9-13]. There are some published surveys available concerning the alleged benefits of traditional medical treatments [6,17-19]. The present research focuses on the availability and utilisation of medicinal plants in protected areas of the Jessore Wildlife Sanctuary as well as changes in the diversity of medicinal plants and their use at the community level, according to experts in medicine.

## 2. MATERIALS AND METHODS

The present studied sanctuary is located south of the desert of Thar in the Jessore Hills of the Aravalli Ranges, with a total geographical area of 180.66 square kilometres (69.75 square miles), and was declared a sanctuary in 1978. The conservation area is located between a habitat for dry deciduous trees and a desert ecosystem. The West Banas River inspired the name of the Gujarat district of Banaskantha, which borders the state of Rajasthan. The district, which has its administrative centre in Palanpur, is located between the longitudes of 23.33 and 24.25 in the North and 71.03 and 73.02 in the East. It contains 12 talukas and 1249 villages. The talukas are Palanpur, Danta, Vadgam, Amirgadh, Dantiwada, Deesa, Dhanera, Kankrej, Diyodar, Bhabhar, Vav, and Tharad.

The purpose of the study was to gather data on the plants used as medicine by the tribes in the Banaskantha district of Gujarat. It is also commonly acknowledged that tribes utilise

medicinal plants, and local traditional healers who are familiar with their uses, the ailments they treat, and other relevant facts are similarly well recognised, such as the names of the plants, their families, and the species they belong to. This has been adopted with an understanding of research and observations. Such as edible fruit and edible plants. Using only the recognised names of the many different species of plants, the number of species or families in each family is identified. This approach avoids the use of the same plant's species name more than once.

The study took place in communities and villages close to the Jessore Wildlife Sanctuary. Two villages are selected for the survey that are close to Jessore Wildlife Sanctuary, named Baludra and Vera. A total of 40 informants were surveyed, and all the medicinal plant uses were documented and recorded verbally.

## 3. RESULTS AND DISCUSSION

The present study focused on the use of plants for medicinal purposes by the tribes in villages. It was observed that the indigenous people employed a wide variety of plants to heal various ailments. A total of 47 medicinal plants belonging to 23 families are recorded in this work (Tables 1 and 2). The information on the scientific name, family, local name, habits, plant parts used, mode of usage, and therapeutic uses of recorded plants is given alphabetically in the table. The present study shows that almost all plant parts are used as medicine. The most commonly used plant parts for curing disease are leaves, followed by fruits, seeds, bark, stems, and flowers.

According to the findings, individuals used a total of 36 distinct tree species and 11 shrub species from 23 different groups. Among the 23 families, Fabaceae was found to be dominant with 12 species (Graph 3). During the ethno-medicinal plant survey, the most common disease cure among the people was found to be fever, cough-cold, skin disease, stomach problems, and dysentery [7], while a minimum number of plants are used to cure anaemia, Earache, Nausea, Leucorrhoea, Jaundice, and arthritis [8], which are included together in the others category. It is observed that a single plant may be used to cure many diseases, such as *Terminalia chebula*, *Phyllanthus emblica*, *Cassia fistula*, and *Moringa oleifera* (Tables 1 and 2).

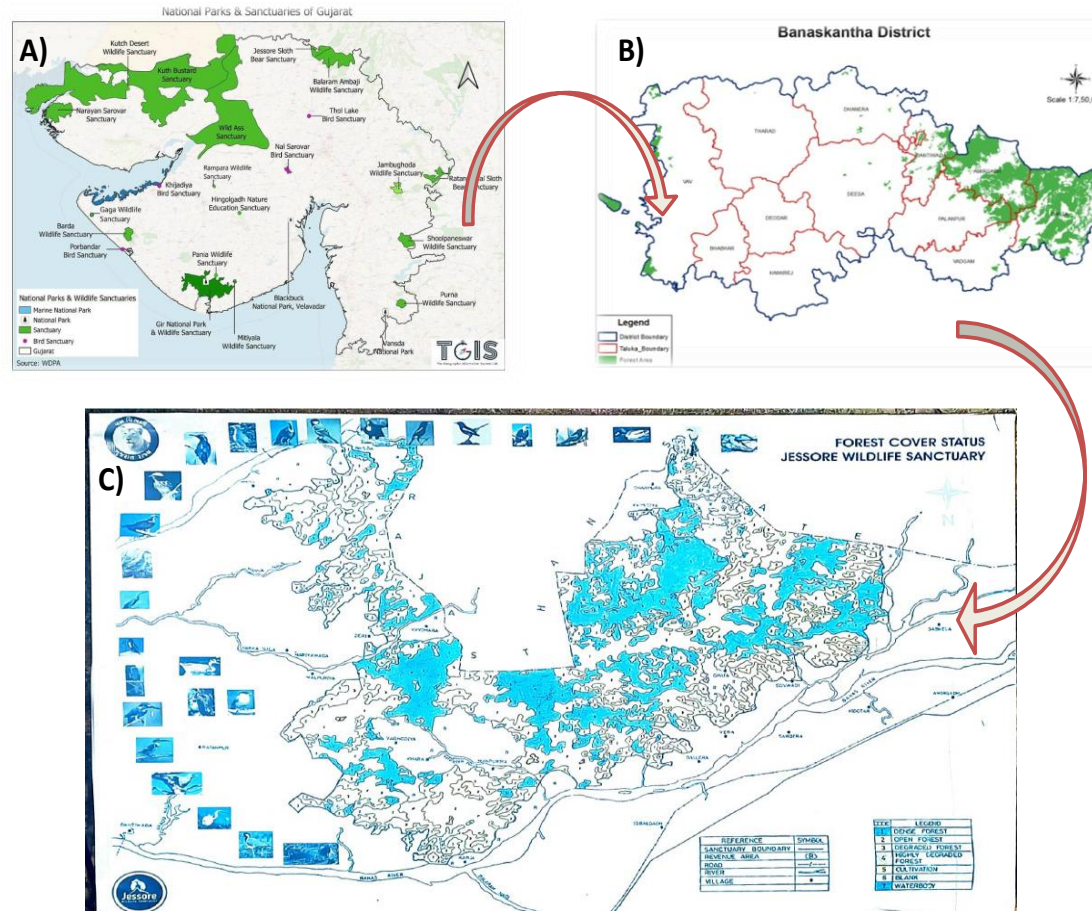


Fig. 1. Study area A) Gujarat Map, B) Banaskantha map, C) Jessore wildlife sanctuary map

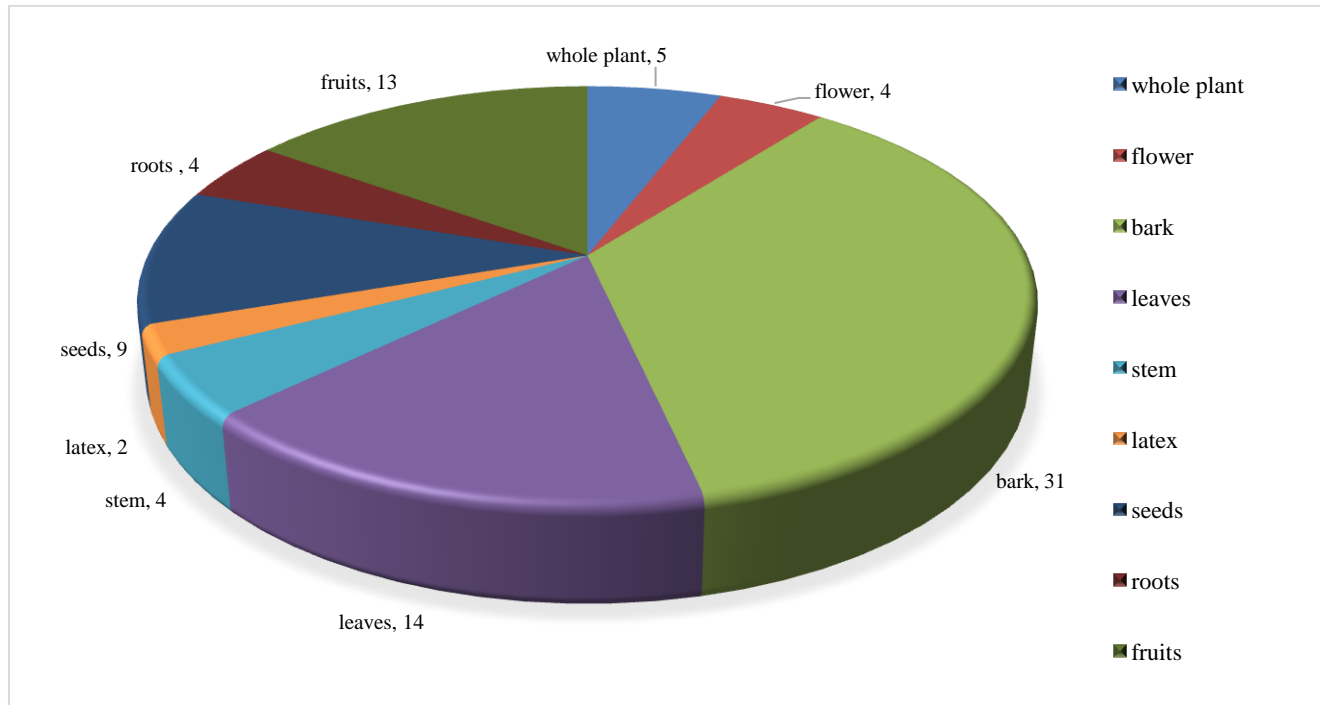
**Table 1. Medicinal plants and their uses**

<b>Botanical name</b>	<b>Local name</b>	<b>Family</b>	<b>Parts used</b>	<b>Ethno-medical uses</b>
<i>Acacia nilotica</i>	Desi Baval	Fabaceae	Bark, fruit, gum	Joint fracture, diabetes, leucorrhoea
<i>Anogeissus latifolia</i>	Dhav	Comretaceae	Roots, bark	Abdominal pain, stomach, liver problem, swelling
<i>Acacia catechu</i>	Kher	Fabaceae	Bark	Leukoderma, Skin disease, dental disease, fever, cough
<i>Aegle marmelos</i>	Bili	Rutaceae	Fruit, leaves	Diarrhoea, dysentery, Fever and asthma
<i>Ailanthus excelsa</i>	Ardaso	Simaroubaceae	Bark, leaves	Skin disease, diarrhoea, asthma
<i>Azardicta indica</i>	Limdo	Meliaceae	Stem, bark, seed, Leaves	Cholera, diabetes, Snakebite, scorpion sting
<i>Albizia lebbeck</i>	Siris	Fabaceae	Bark, leaves, Flower, seed	Cough, skin disease, wounds, Anti poison
<i>Bauhinia racemosa</i>	Aashitro	Fabaceae	Leaf, bark	Leprosy, piles, wounds, dysentery, indigestion, worms
<i>Cassia fistula</i>	Garmado	Fabaceae	Fruit, bark, Leaves, root	Blood purification, asthma, antifertility, antiseptic, burn cough, leprosy, Jaundice, liver problem, ringworm, stomach ache, tooth ache, swelling of throat, pimples
<i>Carea arborea</i>	Khumbhio	Lecythidaceae	Leaf, bark	Cold, dysentery, Muscle stiffness
<i>Cratevanurvala buch-ham</i>	Vay varno	Capparaceae	Bark, root	Kidney disease, joint pain, treating, fever
<i>Casuarina equisetifolia</i>	Sharu	Combretaceae	Bark	Dysentery, stomach ache, swelling
<i>Derris indica</i>	Karji	Fabaceae	Seed, roots	Skin-diseases, Hepatic troubles, Enlargement of spleen.
<i>Ficus benghalensis</i>	Vad	Moraceae	Latex, fruit, leaf, Bark	Cure worms, cut wounds, Toothache, Diabetes, Swelling
<i>Lannea coromandelica</i>	Modak mahudi	Anarcardiaceae	Whole plant	Heart disease, swelling, relieve pain
<i>Moringa oleifera</i>	Shargavo	Moringaceae	Fruit, bark, seed	Urinary tract, Rheumatism and Anthelmintic, Headache
<i>Oroxylum indicum</i>	Tetu	Bignoniaceae	Roots, bark	Diarrhoea and dysentery, Urinary troubles, Jaundice, fevers
<i>Phyllanthus emblica</i>	Aamla	Phyllanthaceae	Fruit, leaves, bark	Bronchitis, asthma, burns, constipation, headache, stomach ache, dropsy, liver problems, diabetes, acidity, dysentery
<i>Peltophorum pterocarpum</i>	Tamraphai	Caesalpiniaceae	Stem, leaves, Fruit	Skin disorder, muscular pain
<i>Phoenix sylvestris</i>	Khjur	Arecaceae	Fruit, leaves, Root	Arthritis, anaemia, cough, improve digestion strength
<i>Pterocarpus marsupium</i>	Biyo	Fabaceae	Bark, leaves	Relives fever, anaemia, relives swelling

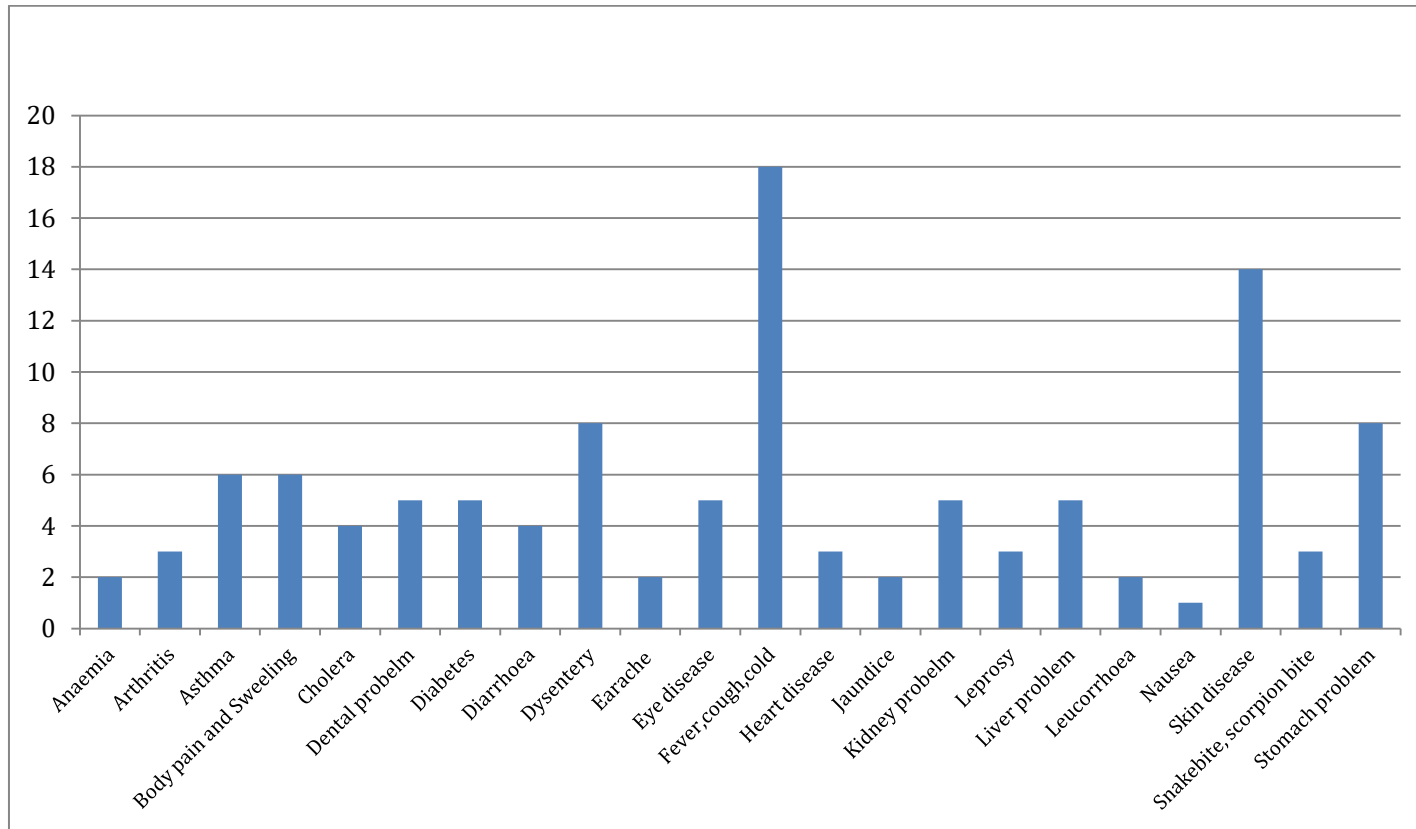
<b>Botanical name</b>	<b>Local name</b>	<b>Family</b>	<b>Parts used</b>	<b>Ethno-medical uses</b>
<i>Polyalthia longifolia</i>	Aasopalav	Annonaceae	Leaves, stem, bark	Anti cancerous, skin diseases
<i>Prosopis juliflora</i>	GandoBaval, Mad tree	Mimosaceae	Leaves	Digestive disturbance, eye disease, skin lesions
<i>Shorea robusta</i>	Salar	Dipterocarpaceae	Bark, resin, Leaves	Earache, ulcers cough, headache, cut healing, eye irritation
<i>Sterculia urens</i>	Gond	Malvaceae	Bark, seeds,	Cure boils, wounds, sores, Joint pain, brain tonic, gonorrhoea
<i>Sapindus trifoliatus</i>	Aritha	Sapindaceae	Fruits, seed	Scorpion bites, respiratory, cough, hair problems
<i>Senna auriculata</i>	Aavad	Fabaceae	Leaves	Muscle pain, body pain, skin, sores and ulcers
<i>Tectona grandis</i>	Saag	Verbenaceae	Root, bark, seed	Wound healing benefits, overcome anaemia, skin health
<i>Terminalia Crnuleta</i>	Sadad	Combretaceae	Bark, stem	Diarrhoea, stomach pain
<i>Tamarindus indica</i>	Khati amlī	Fabaceae	Flower, Seed, fruit	Indigestion, jaundice
<i>Thespesia populnea</i>	Paras piplo	Malvaceae	Whole plant	Skin problem, dysentery, cholera, Haemorrhoids, liver, high blood pressure, wound healing
<i>Terminalia Chebula</i>	Harde	Casuarinaceae	Fruit	Bronchitis, cold, constipation, dysuria, eczema, dysentery, measles, pneumonia, stomach and spleen problem
<i>Tecomella undulata</i>	Rochdo	Bignoniaceae	Bark, flower	Leucorrhoea, liver disease, diabetes
<i>Wrightia tinctoria</i>	Dhudhlo	Apocynaceae	Bark	Skin disease
<i>Ziziphus nummularia</i>	Bordi	Rhamnaceae	Fruit, leaves, root	Dysentery, headache, indigestion, rheumatism, cough, wounds, fever, eye diseases, diarrhoea cholera, colic, blood purification, spleen disease
<i>Zanthoxylum armatum</i>	Timru	Rutaceae	Fruit, seed, bark	Dyspepsia, fever, toothache, cholera

**Table 2. Important medicinal shrub species**

<b>Botanical name</b>	<b>Local name</b>	<b>Family</b>	<b>Parts used</b>	<b>Ethno-medical uses</b>
<i>Bambusa arundinacea</i>	Vans	Poaceae	Young shoots, seeds	Nausea, indigestion, infected wounds
<i>Caesalpinia pulcherrima</i>	Shakhasur	Fabaceae	Whole plant	Bronchitis, asthma, Malarial fever, heart disease, kidney disease
<i>Calotropis gigantea</i>	Safed akado	Apocynaceae	Bark, leaves	Snake bite antidote, arthritis, spine disease
<i>Calotropis procera</i>	Akado	Apocynaceae	Bark, leaves	Treatment of leprosy, asthma
<i>Capparis sepiaria</i>	Kanther	Capparaceae	Flower, leaves, root	Blood purifiers, cough, snake bite,
<i>Cassia auriculata</i>	Aaval	Fabaceae	Whole plant	Jaundice, eye infection (conjunctivitis), joint pain
<i>Commiphora wightii</i>	Gugal	Burseraceae	Whole plant	Skin infections, heart and brain abnormalities, kidney problem
<i>Euphorbia neriifolia</i>	Thor	Euphorbiaceae	Latex bark	Ear pain, skin disease,
<i>Holarrhena pubescens</i>	Indra jav	Apocynaceae	Bark	Arthritis
<i>Justicia adhatoda L</i>	Ardusi	Acanthaceae	Flower	Cough, cold, allergy
<i>Kirganelia reticulata</i>	Kamboi	Phyllanthaceae	Leaves, roots	Fractures, traumatic injury

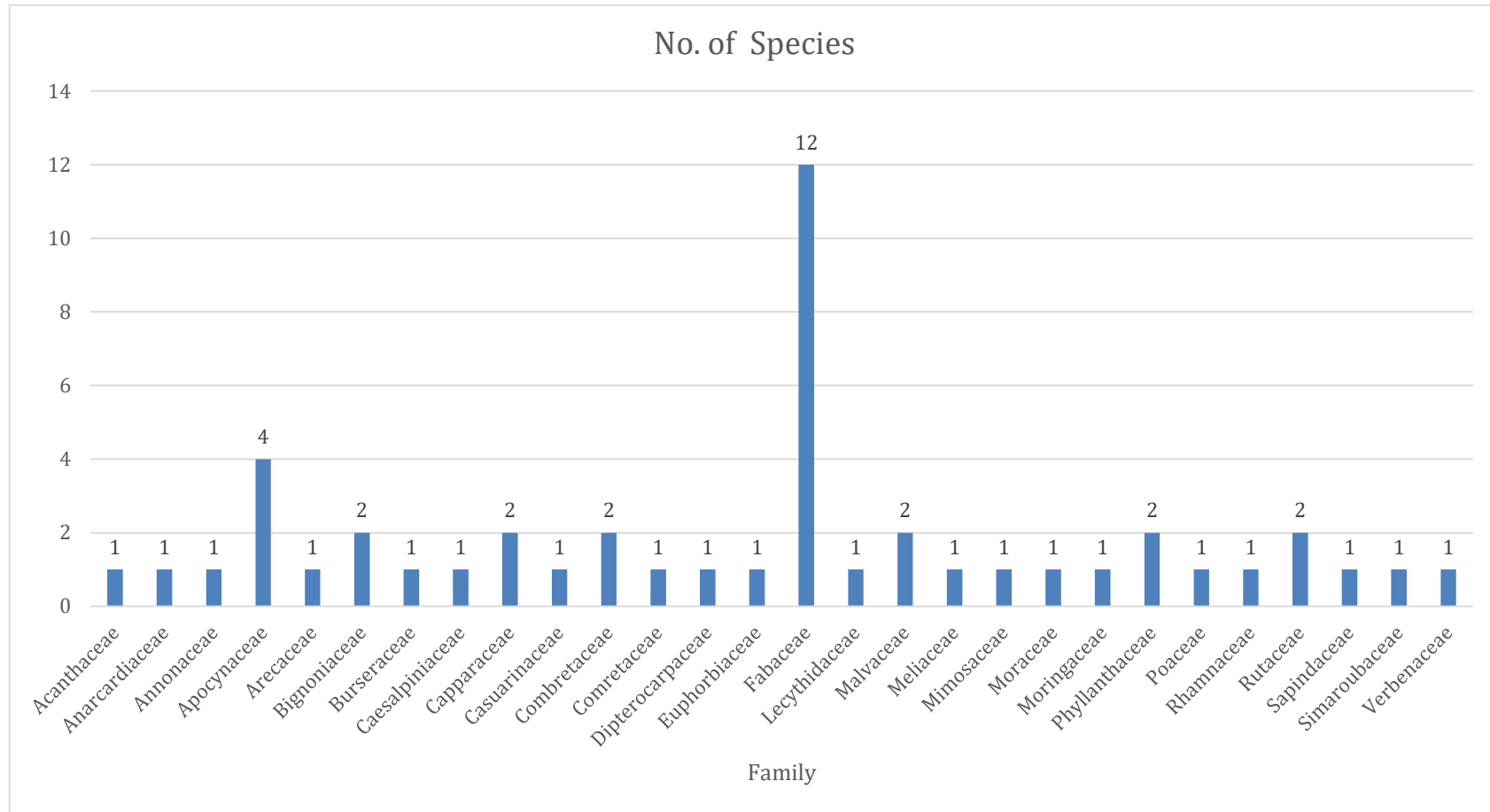


**Graph 1. Pie chart showing the use of plant parts**



**Graph 2. Bar graph showing plant parts used for treatment of different diseases**





**Graph 3. Graphical representation of No. of plant species/family**

Graph 1 shows that almost all plant parts are used as medicine. The most used plant parts for curing disease are leaves followed by fruits, seeds, bark, stems, and flowers.

Graph 2 Shows that curing number of diseases, maximum number of plants are used for curing diseases like Fever, cough, cold, Skin disease, Stomach problem, Dysentery while minimum number of plants are used to cure Anaemia, Earache, Nausea, Leucorrhoea, Jaundice, Arthritis which are included together in others category.

#### 4. CONCLUSION

The study shows the medicinal diversity of sanctuary plants and their valuable uses. The study focused on transferring the knowledge of medicinal plants from tribal people to future generations. According to the survey, there are many medicinal plants in the area of study that can be used to cure a variety of human problems. The research study found that it is vital to find the local forests' biodiversity and preserve it and traditional knowledge through effective documenting and conservation measures. This study demonstrated the potential diversity of medicinal plants by demonstrating their potential through their therapeutic characteristics. The accessibility and utilisation of medicinal plants in Jessore Wild Life Sanctuary, as well as changes in the diversity of medicinal plants and community level in the interpretations of medical experts, are the primary purposes of the present research.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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