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Satruhan

Department of Botany,
 Shaheed Mahendra Karma
 Vishwavidyalaya, Bastar,
 Chhattisgarh, India

DK Patel

Department of Botany, Guru
 Ghasidas Vishwavidyalaya, (A
 Central University), Bilaspur,
 Chhattisgarh, India

Exploration of ethnomedicinal plants of family Fabaceae used by the tribes of Bodla Block, Kabir Dham district, (C.G.) India

Satruhan and DK Patel

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Abstract

The current study deals with certain plants of the family Fabaceae, which are Ethnomedicinally exploited by local tribal people of Bodla Block, Kabir Dham District, (C.G) India. In the world's largest Family of flowering plants, Fabaceae is the third largest group of plants, having around 19,400 species and is classified in about 730 genera. A large number of crude drugs used in the Ayurvedic system employ plants of the family Fabaceae. It is also divided into three sub-families: Papilionaceae, Caesalpinoideae, and Mimosoideae. The present study deals with the study of medicinal plants initiated to get information and report the medicinal plants of the family Fabaceae of Bodla Block during field observation in 2023-24. It is observed that a total of 55 Medicinal plant species belonging to 40 genera were utilised by the local health healers/people for the treatment of different disorders. Conventional medicinal plants were mostly used for different diseases like diabetes, asthma, cough and colds, dysentery, inflammation, wound healing, skin diseases, ulcers, Toothache etc. The medicinal plants used by the traditional users of Bodla Block are arranged alphabetically, followed by their botanical name, local name, parts used and medicinal uses separately.

Keywords: Ethnomedicine, Fabaceae, medicinal plants, traditional uses, tribes

Introduction

The Fabaceae or Leguminosae, commonly known as the legume, pea, or bean family, is a large and economically important family of flowering plants. It includes trees, shrubs, herbaceous plants, perennials, or annuals, which are easily recognized by their fruits (legumes) and their compound, stipulate leaves. The group is widely distributed and is the third-largest land plant family in terms of number of species, behind only the Orchidaceae and Asteraceae, with 730 genera and over 19,400 species ^[1]. The largest genera are *Astragalus* (over 2,400 species), *Acacia* (over 950 species), *Indigofera* (around 700 species), *Crotalaria* (around 700 species), and *Mimosa* (around 500 species), which contain around 9.4% of all flowering plant species ^[2]. This family has extremely diverse characteristics, which make it one of the most important groups of plants; because they are used by humans as crops, green manures, and forages. These plants are also used to synthesize a large range of natural products, including flavours, poisons, and dyes, and also have great importance in medicinal purposes. Many species of plants belonging to multiple families are catalogued as medicinal plants based on the presence of specific chemical constituents and their effects on the biological systems ^[3]. Traditional knowledge of medicinal plants and their uses by indigenous healers and drug development in the present is not only useful for the conservation of cultural tradition and biodiversity but also for community health care and drug development in the local people. The indigenous knowledge of medicinal plants appeared when humans started to learn how to use the traditional knowledge of medicinal plants ^[4].

Characteristics of the Fabaceae: A main and unique feature of this family is its legumes which are the fruit of the plant. Species of this family range from dwarf herbs of arctic and alpine vegetation to massive trees of tropical forest. The family Leguminosae is also divided into 3 sub-families Papilionoidea, Caesalpiniaceae, and Mimosoid ^[5].

Corresponding Author:

Satruhan

Department of Botany,
 Shaheed Mahendra Karma
 Vishwavidyalaya, Bastar,
 Chhattisgarh, India

Sometimes these sub-families are also recognized as a separate and independent family. Identification of these subfamilies is done by their flowers. Legumes of this family are also used economically for nitrogen fixation, as legumes can convert atmospheric nitrogen into useful nitrogenous compounds, which are used for the growth of plants. This is done by the bacteria of the genus *Rhizobium* present in the root nodules. There is a developed symbiotic relationship between bacteria and legumes, so they can fix free nitrogen for plants and in return, legumes can provide fixed carbon produced by photosynthesis. The tendency of legumes for semi-arid to arid habitat is related to a nitrogen-demanding metabolism and this is thought to be an adaptation for unpredictable habitats [6].

Study Area

Kabirdham district is one of the 33 administrative districts of Chhattisgarh state in central India. The district was earlier known as Kawardha District. The district is located between 21.32' to 22.28' north latitude and 80.48' to 81.48' east longitude. The district covers an area of 4,447.5 km² (1,717.2 sq m). The city of Kawardha is its

administrative headquarters. This district is known for the Boramdeo temple (which is also known by the sobriquet, "the Khajuraho of Chhattisgarh") located at a distance of 18 km from the district headquarters, Kawardha. The boundaries of the district are the Dindori District of Madhya Pradesh to the north, the Mungeli and Bemetara Districts to the east, the Rajnandgaon District to the south, Balaghat and Mandla Districts of Madhya Pradesh to the west. The northern and western parts are surrounded by the Maikal mountain ranges of Satpura [7]. Kabirm dham district consists of 4 blocks that are 1. Sahaspur Lohara, 2. Pandariya, 3. Kawardha, 4. Bodla.

Bodla is a Block situated in Kabir dham district in Chhattisgarh. It is one of the 4 blocks of the Kabir dham district. It is located 20 km North of the District headquarters Kawardha. As per the government records, the block number of Bodla is 66. The block has 343 villages and there is a total of 42026 homes in this Block. According to the census 2011 information, the Total area of Bodla Tehsil is 1,880 km² including 1,871.54 km² rural area and 7.99 km² urban area [8]. (Fig.1)

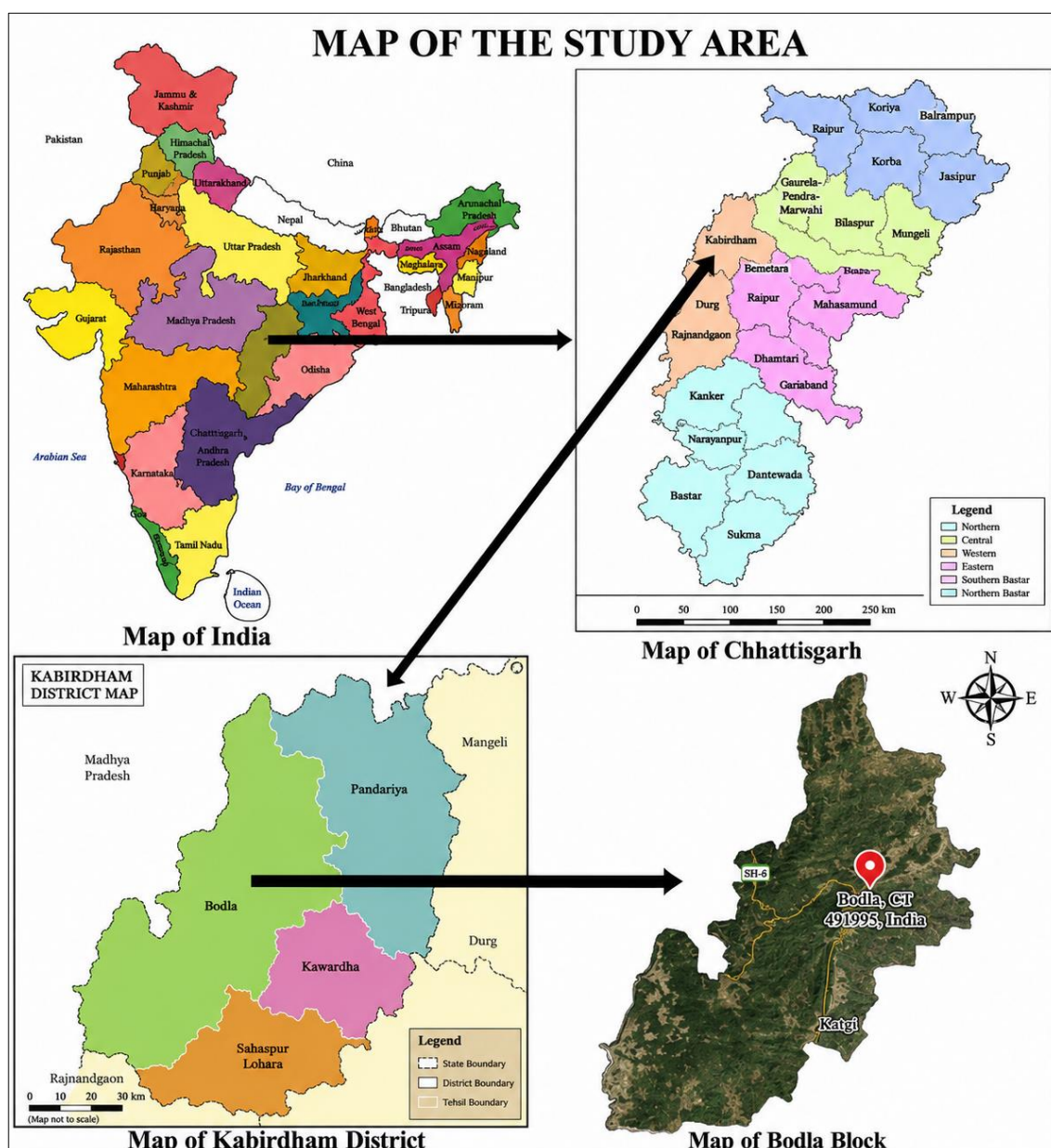


Fig 1: Location map showing Study area Bodla block, Dist. Kabirdham Chhattisgarh, India

Materials and Methods

The current study is based on field observation in 2023 - 2024. The field visit and interview were conducted at regular intervals in randomly selected areas of the Bodla Block, Kabirdham District, Chhattisgarh, India. In the

preliminary stage door-to-door survey based on a semi-structured questionnaire was conducted and necessary data has been collected from local traditional healers *i.e.*; Baiga and Gond tribals.

Table 1: List of selected Medicinal plants and their uses

S. No.	Botanical Name	Common Name	Habit	Used Plants Parts	Traditional Uses
1.	<i>Abrus precatorius</i> L.	Gunja, Gunj	Shrub	Leaf, Seed	Swelling, Purgative, Permanent Birth Control, Analgesic, Anthelmintic, Urine-Stimulant, Leucoderma
2.	<i>Acacia caesia</i> (L.) Willd.	Indu	Shrub	Bark, Stem	Asthma, Cough, Bronchitis, Colic, Diarrhea, High Blood Pressure, Dysentery, Colitis, Gastric Problems, Bronchial Leucorrhea and Leprosy
3.	<i>Acacia catechu</i> (L.f.) Willd.	Khair	Tree	Leaf	Toothache, Headache, Diarrhoea, Cough, Digestive, Skin Disease
4.	<i>Acacia nilotica</i> (L.) Delile	Babool	Tree	Bark, Leaf, Stem	Toothache, Wound, Healing, Dysentery, Antiseptic for wound
5.	<i>Albizia lebbeck</i> Benth.	Sirisa	Tree	Leaf, Seed	Antitode, Saponin for Snake Poison, Skin Disease, Asthma, Diarrhoea
6.	<i>Albizia procera</i> (Roxb.) Benth.	Safed Siris	Tree	Bark, Leaf	Astringent, Piles, Diarrhoea
7.	<i>Arachis hypogaea</i> L.	Mungfali	Herb	Seed	Anti-Inflammatory, Aphrodisiacs,
8.	<i>Phanera vahlii</i> (Wight & Arn.) Benth.	Mohlain	Herb	Root	Delivery convalescence
9.	<i>Bauhinia variegata</i> L.	Kachnar	Shrub	Bark, Leaf	Antifungal, Antimalarial, Pain Reducing, Diarrhoea, Skin Diseases, Diabetes, Inflammation
10.	<i>Butea monosperma</i> (Lam.) Taub	Palash	Tree	Seed	Diarrhea Dysentery, Urinary Disorder, Worms, Diabetes, Inflammation, Skin Diseases
11.	<i>Caesalpinia crista</i> Linn	Gataran	Shrub	Leaf, Seed	Burn, Inflammation, Digestive, Stomach Problem, Skin Disease
12.	<i>Caesalpinia bonduc</i> (L.) Roxb.	Kantala, Gotaran	Shrub	Leaf, Seed	Burn, Inflammation, Digestive
13.	<i>Caesalpinia decapetala</i> (Roth) Alston	Chilati	Shrub	Leaf, Seed	Liver Tonic, Skin Disease
14.	<i>Caesalpinia sappan</i> L.	Pathimugam	Trees	Fruit, Leaf	Menorrhagia, Leucorrhea, Diarrhoea, Dysentery
15.	<i>Cajanus cajan</i> (L.) Millsp.	Arhar	Shrub	Seed	Colic, Constipation, Gingivitis, Toothbrush
16.	<i>Cassia alata</i> Linn	Candle Bush, Ringworm Plant	Herb	Leaf, Seed	Asthma, Skin Diseases, Ringworm, Antidote
17.	<i>Cassia occidentalis</i> Linn.	Coffee senna	Herb	Leaf, Root, Seed	Bronchitis, Cough, Asthma, Diabetes, Wounds, Fever, Antidote for snake bite Allergy
18.	<i>Cassia obtusifolia</i> L.	Charota	Herb	Plant Juice	Anti - Parasitic to Ring Worm, Lax- Dermatitis, Cough and Respiratory Disease, Laxative, Carminative, Skin Disease
19.	<i>Cassia fistula</i> L.	Amaltas	Trees	Bark, Pulp	Purgative, Antiviral, Fever, Tonic, Boil, Ringworm
20.	<i>Cicer arietinum</i> L.	Chana	Herb	Leaf, Seed, Stem	Antioxidant, Antidiabetic, Antidiarrheal, Antimicrobial
21.	<i>Clitoria ternatea</i> L.	Aparajita	Climber	Root, Seed	Purgative, Diuretic, Tonsillitis, Leucoderma, Cough
22.	<i>Crotalaria retusa</i> L.	Khunkuniyan	Shrub	Whole Plant	Cough, Dyspepsia, Fever, Cardiac Disorders, Stomatitis, Diarrhea, Scabies and Impetigo
23.	<i>Crotalaria prostrata</i> Roottler ex Willd.	Latangi	Herb	Whole plant	Bleeding, Delivery, Diarrhoea, Fever, Gout, Postpartum remedy, Skin disease, Stomach disorder
24.	<i>Cullen corylifolium</i> (L.) Medik.	Bawachi	Shrub	Leaf, Seed, Root	Skin Disease, Vitiligo, Poisoning Caries, Deafness, Filariasis
25.	<i>Cyamopsis tetragonoloba</i> (Linn)taub.	Guvarfali	Herb	Fruit, Leaf,	Wound healing, inflammation, sprains, arthritis, constipation, dyspepsia, anorexia,
26.	<i>Dalbergia latifolia</i> Roxb.	Dhobin	Tree	Bark, Root, Stem	Diarrhoea, Worms, Indigestion, Leprosy
27.	<i>Dalbergia sissoo</i> DC.	Shisam	Tree	Leaf, Root, Stem	Leucoderma, Vitiligo, Skin Disease, Gonorrhoea, Dysentery, Itching,
28.	<i>Delonix regia</i> (Hook.) Raf.	Gulmohar	Tree	Bark, Leaf, Stem	Constipation, Arthritis, Diarrhea
29.	<i>Desmodium gangeticum</i> (L.) DC.	Salparni	Shrub	Root, Whole Plants	Cardiac Pain, Gout, Hemiparesis, Pediatrics Disease, Child Delivery
30.	<i>Desmodium triflorum</i> (L.) DC.	Hamsapadi	Herb	Whole Plants	Antidote, Diuretic, Carminative, Tonic, Diarrhea, Skin Disease, Wound, Antidote, Diuretic, Carminative, Tonic, Diarrhea, Skin Disease, Skin Disease, Wounds
31.	<i>Glycine max</i> (L.) Merr.	Soyabean	Herb	Seed	Eye Tonic
32.	<i>Lablab purpureus</i> (L.) Sweet	Semi Bhaji	Climber	Fruits, Leaf, Seed,	Antioxidant, Anti-Inflammatory Skin Disease
33.	<i>Lathyrus sativus</i> L.	Tiwara Bhaji	Herb	Leaf, Seed	Scabies Eczema, Allergy, Diabetes, Paralysis
34.	<i>Lens culinaris</i> Medik.	Masur	Herb	Seed	wound healing, Skin disease
35.	<i>Leucaena leucocephala</i> (Lam.) de Wit	Subabul	Shrub	Fruit	Dysentery, Eczema
36.	<i>Medicago denticulate</i> Willd.	Chanauri Bhaji	Herb	Whole Plants	Arthritis, Kidney Problems
37.	<i>Mimosa pudica</i> L.	Chumui (Lajwanti)	Herb	Leaf, Root Seed	Allergy, Asthma, Baldness, Allergy, Asthma, Ulcer, Bleeding
38.	<i>Mucuna pruriens</i> (L.) DC.	Kavach Beej	Shrub	Seed, Root	Roundworm, Difficult Urination, Emaciation

39.	<i>Ougeinia oojeinensis</i> (Roxb.) Hochr	Timsa	Tree	Bark, Stem	Diarrhea, Jaundice, Diarrhoea, Dysentery, Diabetes, Vermenosis, Leprosy, Leucoderma, Haemorrhages, Fevers, Ulcers, Burning Syndrome, Skin Disease, Urinary Disorder, Obesity, Anti-Inflammatory, Anti-Spasmodic
40.	<i>Phaseolus radiatus</i> L.	Mung Bhaji	Climber	Fruits, Leaf, Seed	Paralysis, Liver Ailments, Cough, Fever, Diabetes
41.	<i>Phaseolus vulgaris</i> L.	Barbatti Bhaji	Climber	Fruits, Leaf, Seed	Reduce Blood Sugar Level, Arthritis, Blood Pressure
42.	<i>Pisum sativum</i> Linn.	Mater	Herb	Seed	diabetes, heart diseases and as blood purifier diabetes, heart diseases and as blood purifier diabetes, heart diseases and as blood purifier Diabetes, Heart Disease, Blood purifier, Anticancer
43.	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Ganga Imli	Tree	Fruits, Gum	Stomach Pain, Ringworm, Chronic Diarrhea, Dysentery, Constipation and Tuberculosis, Toothache, Bleeding.
44.	<i>Pterocarpus marsupium</i> Roxb	Bija	Tree	Bark, Gum	Diabetes, Toothache and Pyorrhoea, Antioxidant activity, analgesic activity, Jaundice, Menorrhagia, Skin disease
45.	<i>Pongamia pinnata</i> (L.) Pierre	Karanj	Tree	Seed, Oil	Purgative, Skin Disease Leucoderma, Carminative, Parasiticide, Bleeding, Skin Disease, Leucoderma, Carminative, Parasiticide Bleeding, Parasiticide, Bleeding
46.	<i>Pueraria tuberosa</i> (Willd.) DC.	Patal Kumbha (Bankurma)	Climber	Root	Immune Booster, Cardiovascular Disease, Fertility Disorder
47.	<i>Pueraria montana</i> (Lour.) Merr	Mudgaparni	Herb	Whole Plants/Tuber Root	Itchiness, Skin Disease, Common Cold, Chest Pain, Blood Pressure, Irregular Heartbeat
48.	<i>Saraca asoca</i> (Roxb.), De. Wild	Ashoka	Tree	Flower, Bark, Seed	Hemorrhagic, Dysentery, Urinary Discharge, Menstruation
49.	<i>Senegalia pennata</i> (L.) Maslin	Safed Chil	Shrub	Bark, Root	Gonorrhea, Coryza, Headache, Leucorrhoea, Pain, Burns, Digestive Disorders
50.	<i>Sesbania sesban</i> (Linn.) Merr.	Jainti	Shrub	Leaf	purgative, demulcent, maturant, anthelmintic and for all pains and inflammation purgative, demulcent, maturant, anthelmintic and for all pains and inflammation purgative, demulcent, maturant, anthelmintic and for all pains and inflammation purgative, demulcent, maturant, anthelmintic and for all pains and inflammation purgative, demulcent, maturant, anthelmintic and for all pains and inflammation Purgative, Demulcent, Anthelmintic, Pain and inflammation
51.	<i>Tamarindus indica</i> L.	Tarmind	Tree	Fruit, Leaf	Inflammatory Swelling, Ringworm, Astringent, Aphrodisiacs, Vertigo
52.	<i>Tephrosia purpurea</i> (L.) Pers.	Sarphonkha	Shrub	Root, Whole Plant	Hepatic Disorder, Chronic, Coughing, Asthma, Ulcer, Urinary Problems, Diarrhoea, Laxative, Blood, Stimulant, Intestinal Worm
53.	<i>Trigonella foenum-graecum</i> L.	Methi Bhaji	Herb	Leaf, Seed, Stem	Diabetes, Stomach Ulcer, Burn
54.	<i>Vigna unguiculata</i> (Linn.) Walp.	Lobia	Herb	Whole plant	Measles, Smallpox, Adenitis, Burns, Sores, Menstrual disorder and Urinary discharges
55.	<i>Vigna mungo</i> (L.) Hepper	Urd (Black Gram)	Herb	Seed	Liver Disease, Piles, Common Cold, Rheumatism

Results and Discussion

On the basis of an extensive collection of medicinal plants from the Bodla block region of the Kabirdham district, it was found that a total of 55 Medicinal Plants species belonging to 40 Genera are reported (Table 1). For each species, the following ethnobotanical information is provided: taxon name, vernacular name, habit of plant, used plant parts and traditional uses. Out of 55 plants recorded from the study area, the highest number of plants belongs to herb (24 species) and tree (16 species) followed by shrubs

(15 species) and (climber 5) Figure 2. A comparison of the plant parts used as a medicinal source indicates that the leaf seed & seed (7-7 species) predominates followed by whole plant, bark, roots, fruit, flower, and seed oil Figure 3. It is noted that due to anthropogenic activities, pressure increases on forest and forest products hence day by day forest area decreases. So far proper conservation planning is required to preserve the floral wealth of Bodla block region. Proper identification of medicinal plants has a vital role in utilizing this natural wealth and conserving biodiversity in the state.

Table 2: Habit variation of Medicinal plants

S. No.	Habit	Number of Medicinal Plants
1.	Climber	5
2.	Herb	19
3.	Shrub	15
4.	Tree	16
Total		55

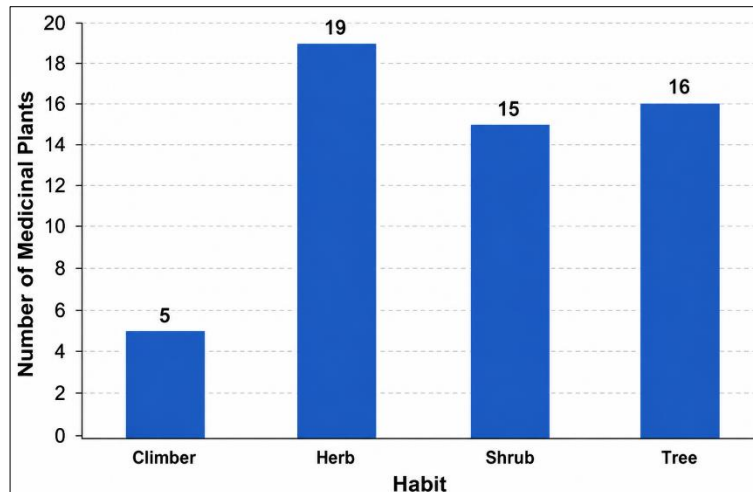


Fig 2: Habit variation of Medicinal plants

Table 3: Variation of Medicinal Plants based on the Plant parts used

S. No.	Plant Parts Used	Number of Medicinal plants
1.	Bark, Leaf	2
2.	Bark, Leaf, Stem	2
3.	Bark, Pulp	1
4.	Bark, Root	1
5.	Bark, Root, Stem	1
6.	Bark, Stem	2
7.	Flower, Bark, Seed	1
8.	Fruit	1
9.	Fruit, Leaf	3
10.	Fruits, Gum	1
11.	Fruits, Leaf, Seed	3
12.	Leaf	2
13.	Leaf, Root Seed	2
14.	Leaf, Root, Stem	1
15.	Leaf, Seed	7
16.	Leaf, Seed, Root	3
17.	Plant Juice	1
18.	Root	2
19.	Root, Seed	1
20.	Root, Whole Plant	2
21.	Seed	7
22.	Seed, Oil	1
23.	Seed, Root	1
24.	Whole Plant	5
25.	Whole Plants/Tuber Root	1
Total		55

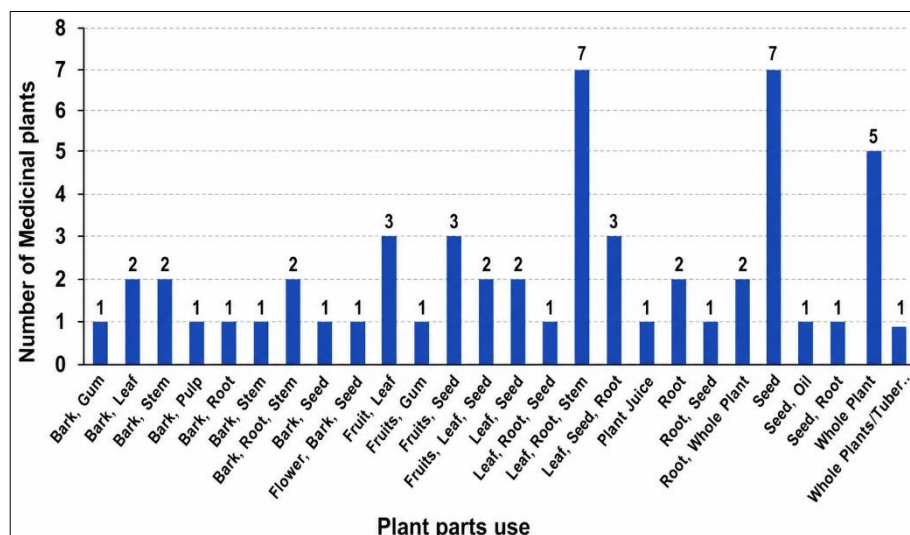


Fig 3: Used Plant Parts of Medicinal Plants

Conclusion

It is concluded that the numerous ways in which members of the Fabaceae family can promote general health. Such ethnomedical use of plants must be documented before they are forgotten. Nonetheless, scientific validation is required for the information that the tribes are aware of on the medical use of plants. Such data may contribute to biodiversity conservation efforts and offer a significant lead for drug development.

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