

AN ETHNOMEDICINAL AND TAXONOMICAL STUDIES IN THE FLORA OF WAMAKKO LOCAL GOVERNMENT AREA, SOKOTO STATE, NIGERIA, WEST AFRICA

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Present investigation deals with the morphotaxonomic and ethno-medicinal studies conducted during January 2011 to December 2011 in Wamakko Local Government Area of Sokoto State, Nigeria. Data were collected from 5 randomly selected areas in Wamakko Local Government Areas. Method of interview was adopted for documentation of folk indigenous knowledge of plants that are used to cure different diseases in the inhabitants. The result revealed a total of 35 species of plants. Family Caesalpiniaceae was represented with the highest number of species (5). This was followed by Moraceae (3 species). Anacardiaceae, Euphobiaceae, Malvaceae, Asclepiadaceae, Mimosaceae and Rhamnaceae were represented with two species each, while other 17 families were represented with one species each. Twenty four families were recorded during the study period. Most of these plants are of medicinal use and can easily be obtained from nature.

Keywords : Ethno-medicine; Flora ; Sokoto State; Taxonomy.

Introduction

Ethno medicine is concerned with the study of medicinal systems from the native's point of views. Native categories and explanatory models of illness, courses of sickness, and treatments are investigated¹⁻³.

The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Unani, and Sidha. During the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different part of the world. Today according to the world health organization (WHO), as many as 80% of the world's population depend on traditional medicine for their primary health care needs⁴. Due to lack of organized, sustainable cultivation based scientific data and lacking awareness of social factors influencing plant use and market, no proper management of traditional medicine is in place, and the numbers of these plants are decreasing at an alarming rate. Medicinal herbs are regarded as free commodity to be collected from nature. Ethnomedicinal studies are suitable source of information regarding useful medicinal plants that can be targeted for domestication and management. However, it is interesting to note that the ethnomedicinal uses of plant are one of the most successful criteria used by the pharmaceutical industry in finding of biomedicine.

There are many diseases tried to be cured using modern method of treatment but failed for examples malaria, cancer, diabetes, rheumatism. A vast knowledge about the use of plants against different illness may be expected to have accumulated in areas where the use of plants is still of great importance. The medicinal value of plants lies in either alone or in combination of some phytochemical that produces a definite physiological action on the human body. Studies on ethno-medicinal plants have been done by Singh⁵, Singh *et al.*⁶ and Singh and Abubakar⁷.

In view of the resurgence in the drive for new drug, the research work was done to establish the importance of morphotaxonomic and ethno-medicinal flora in Wamakko local government of Sokoto state, Nigeria. The study was conducted by collecting the plant specimen and information from local people about medicinal use of native plants which has been transmitted orally from ancestors and knowledgeable people. The medicinal plants used are listed with Latin name, family, local name, part used for the preparation, mode of preparation and medicinal uses.

Material and Methods

Wamakko is a local government area in Sokoto, Nigeria. It is located at 13°2 N and 16°N latitude and longitudes 4° 55E and 5°15E, surrounded by Kware, Tangazu, Yabo,

Bodinga, Silame, Sokoto south, Dange/Shuni and Sokoto north Local Government Area, respectively. The tropical climatic conditions are characterized by wet and dry season. The rainy season is from June to October. From late October to February, during cold season, the climate is dominated by Harmattan wind blowing Sahara dust over the land. The warmest month are February to April when day time temperature can exceed 45°C. The annual average temperature is 28.3°C⁸.

The local names and mode of treatment of collected plants were noted, the collection data was recorded in field diary and voucher specimens were collected for the herbarium and taxonomical study. The herbarium specimens prepared is recommended by Jain and Rao⁹ and Sharma and Rao¹⁰. The names of the plants were taken in Hausa language; their botanical names were derived by using Hutchinsonson *et al.*¹¹, Gbile¹² and Keay *et al.*³. The voucher specimens were submitted in the Department of Biological Sciences, Usmanu Danfodiyo University Sokoto, Sokoto state, Nigeria, for record and reference.

Systematic enumeration

1. Botanical name : *Acacia albida*
 Hausa name : Gawo
 Family : Mimosaceae
 Locality : Arkilla
 Voucher specimen No : 23

Morphology-Tree up to 24m high and 3m in girth bark, brown and fissured when old. The root; deep-penetrating tap root. Leaves are finely hairy all over, spines white up to 2cm long, flowers cream-yellow. In stout spikes 7-14cm long, fruit orange-coloured, irregularly coiled, 10-15 cm long.

Flower fruit-Flowers: October - January, Fruits: January - May.

Ethnomedicinal uses : Leaves, treatment of malaria and fever. Medicinal for fatness together with *Acacia nilotica*. Treatment of the digestive system. Bark in dental hygiene.

2. Botanical name : *Acacia nilotica*
 Hausa name : Bagaruwa
 Family : Mimosaceae
 Locality : Wamakko
 Voucher specimen No : 13

Morphology- Trees with a dense spheric crown, up to 20m high and dark grey, sometimes utmost black dark. Older trees developed a thick, fissured bark. Leaves grey-green with a bluish. Shimmer, bipinnate, with 3-6 pairs of pinnae and 10 to 30 pairs of leaflet. Flowers in luminous, globose yellow globose heads; axillary or whorled, on 2-3 cm long peduncles at the end of the branches.

Flower fruit- November - March, Fruits: December -

March; June.

Ethnomedicinal uses : Hemorrhage, colds, diarrhea, scurvy, dysentery, throat infections, oral infections, toothache, syphilis, ophthalmia.

3. Botanical name : *Adansonia digitata*
 Hausa name : Kuka
 Family : Bombacaceae
 Locality : Wamakko
 Voucher specimen No : 15

Morphology- It is a well known tree almost everywhere in Tropical Africa. It has a might trunk which may reach a diameter of 2-6 (10) m, with a girth of more than 20 m. It is usually being no more than 20m tall, some individual may reach 20 to 30m. Its bark is smooth about 2.5cm thick, silvery-grey leaves of young trees and the first leaves of the reason are generally simple, mature tress have lone petioled, palmate leaves with 3 to 7(9) lanceolate leaflets. Before the rainy season begins solitary, pendulous, creamy, white flowers 15-20cm wide, develop on a long peduncle which may stretch to 1m when carrying fruit. Flowers bloom for about 24 hours and turn brown when old or plucked. Fruits differ in shape among the varieties from oblong and blender to globose or avoid measuring 12-40cm in length, 7-17cm in diameter.

Flower fruit-Flowers: May-July, Fruits: November-March.

Ethnomedicinal uses : Urinary tract disorders, diaphoretic fever, mild diarrhea, infections, malaria, eye lotion, insect bite, hypertension, asthma, hepatic infections, cough, ulcers.

4. Botanical name : *Annona senegalensis*
 Hausa name : Gwandar daji
 Family : Annonaceae
 Locality : Bado
 Voucher specimen No : 29

Morphology- Tree or shrub of about 6m high. Bark grey, usually rather thick and smooth, slash pale pink. Leaves are 5-15 cm long by 3.5-9cm broad, ovate to broadly elliptic, rounded or tapering at the apex. Leaf-stalk stout, 6-12 mm long. Flowers pale-yellow, one to a few on stout stalk 12-25mm long among the leaves. Fruits 5-7.5 cm long, more or less ovoid.

Flower and fruit-January-April; September. Fruit: November-April.

Ethnomedicinal uses : Leaves for treatment of cancer and malaria. Boiled root-bark for treatment of diarrhoea.

5. Botanical name : *Azadirachta indica*
 Hausa name : Dogon yaro
 Family : Meliaceae
 Locality : Gumburawa
 Voucher specimen No : 07

Morphology- A shady tree, up to 25m tall: bark grey, cracked and rough on mature branches leaflet 12-16, crenate serrate, oblique, up to 6 x 1cm. Flowers 2 merous. often up to 8 merous. Staminal column 10 fid at tip; another exserted. Ovary globose 3 - locular, style elongate; stigma 3 - lobed, with a basal rim. Drupe globose, pulpy with a very large exarillate seed.

Flower and fruit- Flower: December - April, Fruit: March - April.

Ethnomedicinal uses : Leaves: typhoid, boils, skin diseases, ulcers, leprosy, Bark; dysentery, bitter tonic for periodic attack, Seed: neem oil, insecticide, Water boiled with leaves: antiseptic.

6. Botanical name : *Balanites aegyptiaca*
 Hausa name : Aduwa
 Family : Balanitaceae
 Locality : Wamakko
 Voucher specimen No : 19

Morphology- A small tree, rarely up to 8m high. Young parts pubescent or tomentose, branches yellowish green, glabrous or puberulouse; spines long axillary, straight, strong, very sharp. Leaves 2 - foliatae, petioles long leaflets elliptic or obovate, obtuse or subacute, sometimes slightly mucronate, base usually acute, petioles very short. Flowers small, greenish - white, fragrant, in axillary, few or many flowered, short - peduncled lymes or fascicles. Sepals ovate, long, pubescent outside, silky within petals along-obovate, glabrous outside silky vilous within, very little longer than sepals - filaments subacute.

Flower and fruit- Flower: March - June, Fruit: March - October.

Ethnomedicinal uses : Oil is consumed for headache and to improve lactation. Leaves: treatment of heart attack, tuberculosis and dysentery, stomach ache, rheumatism, fish poison, and epilepsy.

7. Botanical name : *Bauhinia rufescens*
 Hausa name : Jirga
 Family : Caesalpiniaceae
 Locality : Wamakko
 Voucher specimen No : 12

Morphology- A tree; 1-3m high and can grow up to 8m. Leaves, deep shade of green. Seeds, in bunches of dark brown pods. It appears to have thorns which are actively leafless. Bark, ash-grey.

Flower and fruit- Flower at most seasons, Fruit: November - April.

Ethnomedicinal uses : Seed, it is used in the treatment of wound and catarrh, yellow fever, diarrhea, dysentery, leprosy, malaria. Bark from the stem used to treat syphilis and leprosy.

8. Botanical name : *Calotropis procera*

- Hausa name : Tumfafia
 Family : Asclepiadaceae
 Locality : Gumburawa
 Voucher specimen No : 04

Morphology- A large tomentors shrub up to 5.5m high reaching small tree size when very old. Leaves elliptic ovate to obovate, 10-12cm long. Apmplexcal or cordate at base, with a ring of glandular hairs at the base of lamina, flowers white to purple; in lateral, subumbellate cymes. Sepal cotton, corolla campanute divided more than half-way down, lobes revolute and fruited at age. Follicles in pairs, boat-shaped, with hooked tip, cottory pubescent seeds with long silky corn.

Flower and fruit- Flower: March - July, Fruit: May - October.

Ethnomedicinal uses : Rhizome: fever, snake bite, guinea worm, asthma, headache and skin disease.

9. Botanical name : *Celtis integrifolia*
 Hausa name : Dukki
 Family : Ulmaceae
 Locality : Wamakko
 Voucher specimen No : 11

Morphology- Tree 24 m high and 5m in girth, branching low down with spreading rounded crown. Bark grayish, fairly smooth. Leaves 3.5-9cm long by 2.5-5cm broad. It mostly ovate and markedly unsymmetrical flowers greenish, in slightly branched axillary inflorescences 1-5cm long. Fruits ovoid, brown, up to 1cm long. The dupes are edible.

Flower and fruit- Flower: December - April, Fruit: May - September.

Ethnomedicinal uses : In treatment of rheumatism. Leaf in treatment of swellings, small-pox, chicken pox, and measles. Root, for epilepsy, malnutrition, paralysis and insanity.

10. Botanical name : *Citrus aurantifolia*
 Hausa name : Lemun yami
 Family : Rutaceae
 Locality : Gumburawa
 Voucher specimen No : 09

Morphology- Tree 5m with many thorns, branches, leaves, ovate 2-5-9cm (1-3.5m) long. Flowers, 2.5cm (1m) in diameter, yellowish white with a light purple. Fruit, globose 2.5-5cm in diameter.

Flower and fruit- Flower and fruit appear throughout the year but most abundant from May to September.

Ethnomedicinal uses : Fruits, sources of vitamin C, medicinal to stomach ache, vomiting. Leaves are medicinal for typhoid. Both fruits and leave treatment of gonorrhoea, hepatitis, jaundice, fever.

11. Botanical name : *Eucalyptus camaldulensis*

Hausa name : Turare/zaiti
 Family : Myrtaceae
 Locality : Arkilla
 Voucher specimen No : 24

Morphology- A tall tree up to 40m high, trunk to very slender, long smooth and glabrous, peeling often summer. Leaves, aromatic, coriaceous, glabrescens, linear - lanceolate, oblique-based, acute or acuminate. Flowers, short-pedicelled led, in 3-flowered umbels, collected in panicles on short leafless branches, calyx tube entire petals forming a detachable operculum of hard, ovoid-urceolate, many seeded capsule.

Flower : Flowering through out the year

Ethnomedicinal uses : Leaves, heart attack, cold cough, diarrhea, dysentery and typhoid fever.

12. Botanical name : *Euphorbia balsamifera*
 Hausa name : Aguwa
 Family : Euphorbiaceae
 Locality : Kwalkwalawa
 Voucher specimen No : 32

Morphology- It forms intricately branched, rounded shrub of variable height from very short bushes hardly rising above the ground to small trees up to 5m tall. Stems are thick, semi succulent, approx 1cm in diameter, covered in transversely elongated leaf scar, grey or terracotta coloured, branching with the base stalks becoming thick. Leaves, up to 80mm long x 4-8mm wide, attractive sessile, linear lanceolate to long oval shaped green to glaucous. Flowers, the inflorescences are terminal cymes usually reduced to a single subsessile cyathium up to 6mm on each branch which stay central above yellowish-green pseudo-petals. Fruit; large capsule approx 9-10mm wide viscid, green becoming pinkish reddish green, shallowly lobed, glabrous or hairy. Seed, subglobose 3 x 2, 8mm wide.

Flower and fruit- Flower: September - March, fruit: March - April.

Ethnomedicinal uses : Leaves are used as antagig treatment of acute dental pulpitis.

13. Botanical name : *Ficus polita*
 Hausa name : Durumi
 Family : Moraceae
 Locality : Wamakko
 Voucher specimen No : 17

Morphology- Tree is 18m high, much branched with a dense rounded crown. Bark smooth, pale brown or grey. Leaves 7-15cm long by 5-10cm broad, ovate, dark green and glossy. Fruits very prolific 2.5-3.5cm across glabrous.

Fruit-Fruit: December - January.

Ethnomedicinal uses : Treatment of dyspepsia, infectious diseases, abdominal pains and diarrhea.

14. Botanical name : *Ficus sycomorus*
 Hausa name : Baure
 Family : Moraceae
 Locality : Gumburawa
 Voucher specimen No : 05

Morphology- A tree over 40ft (12m) foliage evergreen, velvet/fuzzy-textured, bloom colour white/near white, inconspicuous. Fruit is large edible 2-3 cm in diameter, yellow or red in colour. Leaves are heart-shaped with apex 14cm long by 30 cm wide.

Flower and fruit- Flower and fruit July -December.

Ethnomedicinal uses : Leaves, medicinal for migraine headache. Bark, medicinal for pneumonia.

15. Botanical name : *Ficus thonningii*
 Hausa name : Chediya
 Family : Moraceae
 Locality : Gumburawa
 Voucher specimen No : 10

Morphology- Tree up to 21 m high, with dense crown. Bark smooth, pale brown or grey. Leaves 5-20 cm long by 2.5-10 cm broad, elliptic to obovate, usually dark green and glossy above, glabrous. Fruits solitary, little larger, glabrous, slightly hairy or velvety.

Fruit-Fruit: September - October; February - April.

Ethnomedicinal uses : The bark is used in treating colds, sore throat, dysentery, wounds, constipation nose bleed and to stimulate lactation. Latex is used for wound fever.

16. Botanical name : *Indigofera arrecta*
 Hausa name : Baba
 Family : Papilionaceae
 Locality : Gumburawa
 Voucher specimen No : 06

Morphology- A shrub about 2cm high erect, branched. Leaflets in fire to eight pairs, oblanceolate hairy beneath. Flowers yellow in 6 to 12 flowered racemes. Pod chestnut-brown when mature, 1.5 to 4cm long, polished, six to eight-seeded.

Flower: flower: July-September.

Ethnomedicinal uses : The leaves are used in traditional medicines for epilepsy and nervous disorders and to heal sores, ulcers and rashes.

17. Botanical name : *Ipomea asarifolia*
 Hausa name : Duman kada
 Family : Convolvulaceae
 Locality : Arkilla
 Voucher specimen No : 21

Morphology- Perennial herbs, stems prostrate or tips trailing, leaves circulator kidney shaped, 3.5-8 by 8.5-10 cm, base cordate, basal lobes rounded, apex broadly rounded, mucronulate, petiole thick, 3.9 cm long, deeply grooved axially, smooth or elliptic-oblong, obtuse,

mucromulate, outer 2 shorter, 3 nerved, rather warty, 5-6mm long, inner ones 8-9 mm, conolla funnel form, red-purple. Fruits capsule globose, 1.5 cm diameter, glabrous. *Flower and fruit*- Flower: July; October-December, fruit: July; October-November.

Ethnomedicinal uses : Medicinal for ribache.

18. Botanical name : *Jatropha curcas*
 Hausa name : Chi ni da zugu/Bini da zugu
 Family : Euphorbiaceae
 Locality : Wamakko
 Voucher specimen No : 31

Morphology- Shrub up to 6m with spreading branches and stubby twigs, with a milky or yellowish rufescent exudates leaves deciduous, alternate but apically crowded, ovate, acute to acuminate basally cordate, 3 to 5-lobed in outline, 6-40cm broad; the petioles 2.5-7.5cm long. Flowers several to many in greenish cymes, yellowish, bell-shaped, sepals 5, broadly deltoid.

Flower and fruit- Flower: March - April, Fruit: June-july

Ethnomedicinal uses : The seed and fruits is used as contraceptive, homicide, piscide as well as extracts are used for folk remedies for cancer, abortifacient, antiseptic, ruberfacient. A folk remedy for burns, convulsions, cough, diarrhea, dysentery, eczema, fever, gonorrhoea, pneumonia, rash, scabies, tumors, ulcers.

19. Botanical name : *Lawsonia inermis*
 Hausa name : Lalle
 Family : Lythraceae
 Locality : Gumburawa
 Voucher specimen No : 02

Morphology- A small trees or large shrub 6m high flowers, branches, lateral. Leaves in pair, 2 to 4cm long. Flowers either white, red, yellow, pink. Seed, small and polygonal.

Flower: April - May.

Ethnomedicinal uses : Roots, Medicinal to pneumonia. Leaves, treatment of whitlow.

20. Botanical name : *Leptadenia hastata*
 Hausa name : Yadiya
 Family : Asclepiadaceae
 Locality : Bado
 Voucher specimen No : 28

Morphology- It is a creeping plant with alternate acuminate leaves. Stem light green. Young shoots spreading into the air with long internodes. The leaves are up to 10cm long, mostly ovate, light green. The fruits are two-valved, conical, dehiscent to release cottony winged seeds. When, crushed, the plant exudes sticky sap.

Flower and fruit- Flower and fruit all most all season.

Ethnomedicinal uses: Sap of the stem is applied to wounds and skin diseases.

21. Botanical name : *Mangifera indica*

- Hausa name : Mangwaro
 Family : Anacardiaceae
 Locality : Gumburawa
 Voucher specimen No : 01

Morphology- It is a tree recognized by its large, even dense, widely spreading crown and heights of nearly 40m and stem diameters of up to 1.50m may be reached, but trees rarely exceed 10m high in the sahel. Bark is brown and smooth when young, almost black and rugose when old. The root network penetrates deeply (up to 8m) into the soil. The leaves are alternate, copper coloured when young, tender. Flowers abundantly with terminal panicles, nearly 20cm long, male and female but also hermaphroditic flowers occur on the same outflorescence.

Flower and fruit- Flower: May - June, Fruit: June - July.

Ethnomedicinal uses : Dried mango flowers, serve as astringents case of diarrhea, chronic dysentery, catarrh of the bladder and chronic urethrites resulting from gonorrhoea, treatment of syphilis and bleeding hemorrhoids. Extracts of unripe fruits and of bark, stems and leaves hone shown antibiotic activity. The leaf decoction is taken as a remedy for diarrhea, fever chest complaints, diabetes, hypertension and other ills. A combined decoction of mango and other leaves is taken after child birth.

22. Botanical name : *Mimosa pigra*
 Hausa name : Gumbi
 Family : Casealpiniaceae
 Locality : Arkilla
 Voucher specimen No : 22

Morphology- It is leguminous shrub; reach up to 6m in height. Stem is greenish when young but woody when matures. Leaves are bright green and bipinnates reaches up to 20 to 25cm long. Flowers are mauve or pink, born in tight, subglobose pedunculate heads 1cm in diameter. Fruit is a thick hairy, 20-25 seeded, fruits turn brown when mature, breaking into one seeded sepments, and seeds are brown or olive green.

Flower and fruit- Flower begins 6 to 8 month following germination. Fruit: December - May.

Ethnomedicinal uses : Leaf, stem for toothaches powder root sniffed for head colds. Fruits, eye medicines snake bite. Leaves treatment of weak heart, diarrhea.

23. Botanical name : *Moringa oleifera*
 Hausa name : Zogale.
 Family : Moringaceae
 Locality : Gumburawa
 Voucher specimen No : 03

Morphology- A small soft woody tree. Bark cooky, herbage tomentose, Leave; 3 - pinnate 30-60cm long, petriole slender, pinnate 4-6 pairs. Leaflets 6-9 pairs

penicle large, spreading. Petals spathulate with prominent nerves stamen 5 each alternating with one sterile filament ovary oblong, hairy. Capsule up to 45cm long seed strigose.

Flower and fruit- Flower: December-February, fruit: March- June.

Ethnomedicinal uses : Whole plant; abortifacient, anathemaitic. Root: digestive, diuretic, eye diseases, paralysis, guinea. Flowers and leaves, typhoid, ulcer and rich sources of vitamin A.

24. Botanical name : *Neocarya macrophylla*
Hausa name : Gawasa
Family : Rosaceae
Locality : Kwalkwalawa
Voucher specimen No : 30

Morphology-Trees up to 30 ft high and 8ft in girth bark fairly smooth or covered with fine fissures; slash reddish. Leaves 4-10 in long by 3-6 in broad, broadly ovate or elliptic rounded at the apex, flowers (at most seasons) white or pinkish, in stout racemens, sometimes with a few branches, 3-9 cm long the whole inflorescence density hairy, fruits (at most seasons) very persistent, yellowish-brown, ellipsoid, about 2in. long by 1.25 in diameter, with rough skin surrounding a mealy witch edible flesh, shortly and densely hairy when young.

Flower and fruit- Flower and fruit occur at most seasons.

Ethnomedicinal uses : Leaves treatment of eyes infection, conjunctivitis.

25. Botanical name : *Ocimum basilicum*
Hausa name : Do-dowa
Family : Lamiaceae
Locality : Wamakko
Voucher specimen No : 18

Morphology- It grows between 30 - 130 cm tall, light green; silky leaves 3-11cm long and 1-6cm broad. The flowers are small, white in color and arranged in a terminal spike. Plants are leafy and branch freely with a pair of opposing branches in a flat plans.

Flower: Flower: August-September, fruit: September.

Ethnomedicinal uses : Dried leaves are used treatment of headaches, indigestion and constipations.

26. Botanical name : *Piliostigma reticulatum*
Hausa name : Kalgo
Family : Caesalpiniaceae
Locality : Arkilla
Voucher specimen No : 20

Morphology- Tree up to 10m high, with a dense spreading crown; evergreen;. Bole short bark dark grey, sometimes rust-coloured deeply fissured, slash and turning brown, fibrous, leaves 5-7.5cm long by 5-10cm broad and glabrous. Flowers white, the whole inflorescence very

shortly hairy or scurfy. Fruits 15-25cm long by 2.5-5cm broad, hard, flat dark brown, sometimes with twisted glabrous.

Flower and fruit- Flower: December-March, fruit: persisting for many months.

Ethnomedicinal uses : Treatment of cancer medicine for stomach pain.

27. Botanical name : *Cassia occidentalis*
Hausa name : Sanga - Sanga
Family : Caesalpiniaceae
Locality : Kwalkwalawa
Voucher specimen No : 27

Morphology- A smooth annual shrub up to 2m tall. Leaves compound up to 15cm long, leaflets are in 4-6 pairs and have a sharp leaf apex and ovate-lanceolate. Flowering occurs in the axile, yellow-petaled in colour at about 2cm across.

Flower: Flower: March-April

Ethnomedicinal uses : Leaves for eczema, decrease unhealthy weight loss, severe diarrhea, and diaper rash.

28. Botanical name : *Sclerocarya birrea*
Hausa name : Nunu
Family : Anacardiaceae
Locality : Bado
Voucher specimen No : 34

Morphology- Tree usually 9m tall, singled stem with a dense, spreading crown and deciduous foliage, bark is grey. Leaves 18-25 x 8 - 15cm, oblong elliptic. Flow. are dark red when young, turning pink or white when open. Fruits borne in clusters of up to 3 at the end of the twigs round or oval dupe with diameter of 30-40 mm.

Flower and fruit- Flower: September - November, fruit: January - March.

Ethnomedicinal uses : Bark treatment of variety of ailments, fever, boils and diarrhea. Steam from bark eye disorder. Bark in decoction for malaria, dysentery and rheumatism. Leaves bark and roots for snake bite toothache.

29. Botanical name : *Sida ovata*
Hausa name : Miyar tsanya
Family : Malvaceae
Locality : Arkilla
Voucher specimen No : 25

Morphology- Tree up to 50cm tall, densely grey-green hairy. Stems wiry, terate to some what singled when young become woody and hairless when older. Leaves, elliptic, oblong, ovate to somewhat obovate, 10-35mm long apex obtuse to rounded, grey-green hairy on both surfaces, margin coarsely serrate-crenate, petiole 2-10mm, hairy flowers axillaries.

Flower and fruit- Flower and fruit August - November.

Ethnomedicinal uses : Leaves for snake bite, swellings, dropsy, root for pulmonary troubles, toothache.

30. Botanical name : *Tamarindus indica*
 Hausa name : Tsamiya
 Family : Caesalpiniaceae
 Locality : Gumburawa
 Voucher specimen No : 08

Morphology- Tree 12-15m high and 2-2.5m girth, with a dense, dark compact crown leaves 7-15cm long, with 10-15 pairs of strictly opposite leaflets 2-3 an long by 6-10m broad elongated, rounded and usually notched at the apex, fruit sausage - shaped not splitting open. Flowers about 2.5cm across and yellow, red in colour.

Flower and fruit- Flower: November-December; May-August. Fruit: November-August.

Ethnomedicinal uses : Fresh stem bark and fresh leaves are used as decoction mixed with potash for the treatment of stomach disorders, general body pain, as blood tonic and skin cleanser. Leaves and fruits for treatment of malaria fever, cough and cancer.

31. Botanical name : *Urena lobata*
 Hausa name : Romaiya
 Family : Malvaceae
 Locality : Bado
 Voucher specimen No : 35

Morphology- An erect or ascending under shrub, up to 50cm to 2m high, stellate - hairy stem, petiole and pedicles, leaves stipulate, highly variable in respect of size, shape, incision and indumentions even in the some plant; mid-rib glandular at base beneath. Epicalyx 2, embracing the calyx and at base adnate to it calyx with a nectar or a thickening on the costax, stellate hair, outside, sericeous by simple hairs at apex within. Corolla rotate, pink stamina column entheriferous on upper half. Mericarps 5, indehiscent 3-genous, dorsally compressed, covered with glochidia.

Flower and fruit- September - April.

Ethnomedicinal uses : Roots, dyspepsia, chronic pain and stomachache.

32. Botanical name : *Vernonia amygdalina*
 Hausa name : Shiwakka
 Family : Asteraceae
 Locality : Wamakko
 Voucher specimen No : 16

Morphology- Shrub or small tree of 2-5m with petiolate of about 6mm diameter and elliptical shape leaves lanceolate to oblong; up to 28 x 10cm, but usually about 10 - 15 x 4 - 5cm, dark green. Flowers heads thistle like, small, creamy - white, above 10mm long. Fruits a small nutlet, with minute glands and bristly leaves on the body.

Flower and fruit- Flower and fruit November - December.

Ethnomedicinal uses : Leaves, diabetes, nausea, dysentery stimulate digestive system.

33. Botanical name : *Vitex doniana*
 Hausa name : Dunya
 Family : Verbenaceae
 Locality : Kwakwalawa
 Voucher specimen No : 33

Morphology- Tree up to 15m high and 3m in girth with a dense grounded crown and dark green foliage. Bark grey to pale brown, leaves with a stout common stalk 7-15cm long and usually rounded at the apex and tapering to the ciliate base. Flowers pinkish - white 7-12mm long. Fruit broadly ellipsoid, about 2.5cm diameter.

Flower and fruit- Flowers: January - April, fruits: March.

Ethnomedicinal uses : Used in treatment of Anemia and root is used for gonorrhoea, used improve fertility, for jaundice, leprosy and dysentery.

34. Botanical name : *Ziziphus mauritiana*
 Hausa name : Magariya
 Family : Rhamnaceae
 Locality : Bado
 Voucher specimen No : 26

Morphology- Tree to 12m high and 1.5m in girth, with a dense tangle of thorny branches often dropping at the ends. Bark brown or grey, leaves usually 2.3 - 5cm long by 1-2.5cm broad but sometimes larger, dark green and glossy. Flowers greenish or cream - coloured. Fruits globose, reddish, 12 - 18mm diameter.

Flower and fruit- Flower: November - December; July - October, fruit: November - December.

Ethnomedicinal uses : Leaves, scabies and boils, smoke of dried leaves inhaled for cough and cold.

35. Botanical name : *Ziziphus spina-christi*
 Hausa name : Kurna
 Family : Rhamnaceae
 Locality : Wamakko
 Voucher specimen No : 14

Morphology- A shrub, sometimes a tall tree, reaching a height of 20m and a diameter of 60cm; bark light-grey, very cracked, scaly, trunk twisted, very branched, crown thick, shoots whitish, flexible, drooping, thorns in pairs, one straight, other curved. Leaves glabrous on upper surface, finely pubescent below, ovate-lanceolate or ellipsoid, apex acute or obtuse, margins almost entire, lateral veins conspicuous, flowers in cyme subsessile, peduncle 1-3mm. Fruit about 1 cm in diameter.

Flower and fruit- Flower: October - December; fruit: November - December.

Ethnomedicinal uses : As bandage to treat scar, blood purification, anesthetic. Leaves are used for the treatment of abscesses, furuncles and swollen eyes and its wood

ash for treatment of snake bite. The roots are used to treat headaches, while the spines or ashes of this species are applied to snake bites, fruits are used as an emollient and astringent agent.

Results and Discussion

In general over 35 plant species were collected belonging to 24 families which are utilized by local communities to cure different diseases. These plant species were collected from Gumburawa, Wamakko, Kwalkwalawa, Arkilla and Bado of Wamakko Local Government Area of Sokoto State, Nigeria. The medicinal plants are prepared in various ways, for medicinal purpose, a decoction of leaves, stems, roots or bark which is either drunk or rubbed on the body for treatment of one or more diseases or conditions. It can also be in infusions where delicate herbs, leaves and fresh tender plants are prepared in form of tea. Tincture form is either mixture of alcohol, water and herbs, this is done when plant has active chemical that is not soluble in water. Another form is in maceration which is the easiest; the fresh or dried part of the plant is covered in cooled water and then taken. Finally poultice and bath, in poultice the part of leaves, stem, root and fruit are applied directly on the skin having usually rashes and while in bath remedies, the medicinal plant is added to bath water and partial soaked in it. Due to this skin can absorb plant chemical directly through the skin.

Traditional healers may prescribe different doses remedies for different age groups; preferably, more amounts of remedies are given for adult than children to treat the same diseases. Remedies used to treat ailments had no adverse effects on patients. The most treated diseases are skin diseases (Scabies, rashes, measles, eczema, chicken pox), ulcers, dysentery, diarrhea, pain, toothache, cough, cold, typhoid, lactation, headache, snakebite, fever and stomach. The average treated diseases are boils, leprosy, epilepsy, diabetes, wound, jaundice, paralysis, gonorrhoea, eye infection, asthma and cancer.

A remarkable traditional medicinal plants knowledge and practice from the study area were observed. These plants found in this area are used tremendously by the traditional healers to cure diseases, illness like cough, diarrhea, eye disease which indicate that medicinal plants has wide spectrum of human ailment. Proper identification of medicinal plants is also very important in the development of traditional medicine. Attempt must be made to encourage the documentation of plants so as to make it readily accessible to a larger number of population. The use of medicinal plants ensures the continuity of indigenous knowledge associated with

the species and has definite bearing on identification of medicinal plants, drug preparation and usage for medicines, as great potential among the tribe of Wamakko.

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