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A Checklist and Ethnobotanical Assessement of Trees Species of Abubakar Tafawa Balewa University (ATBU) Yelwa Campus Bauchi, Nigeria

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Abstract: The various ethnobotanical uses of tree species growing on the ATBU Yelwa Campus, Bauchi, Northeastern Nigeria, was investigated with the view of documenting the intrinsic values and therapeutic properties for various ailments and other spiritual paraphernalia and subsequently inventorying all the species present. Samples were collected randomly from each sampling plots of equal sizes and the ethnobotanical information was obtained through the administration of questionnaires to the indigenous people. A total of 2,467 woody species of trees belonging to 47 species, 39 genera in 20 families were recorded with 70% being native and 30% being exotic. The distribution pattern showed members of Caesalpinoideae have highest density of occurrence with (526/21%) species, Mimosoideae (411/16%) and Meliaceae (381/13%), while Sterculiaceae (2/0.08%) and Rubiaceae (3/0.012%) were recorded with least densities of occurrence. These trees were observed to provide the inhabitants with several varieties of usage for survival and prosperity such as medicinal, edible food, fodder, timber, fuel among others. However, the utilization pattern showed that about 42 species (39.25%) are used for medicinal purposes; 19 species used as edible (17.75%); 18 species (16.82%) for other uses; 12 species as fuel wood (11.24%); 12 species (8%) used as fodder while, 7 species (7%) are used as timber. Plants parts usage categories was highlighted with bark and leaves having highest percentage of usage and subsequently followed by other plant parts. However, devising a suitable means of conserving them for posterity has thus become imperative.

Key words: Trees, ethnobotany, ATBU, conservation

INTRODUCTION

From time immemorial , man has use plants to fight and combat diseases, construct houses, treat and feed his animals, eat as food and perform other spiritual paraphernalia and with recent usage for aesthetic purposes. The systematic study of this usage is being refers to as Ethnobotany, firstly coined by the American botanist (Harshberger, 1895; Sommer and Ross, 2010), since then this term has been defined by several authors with different views attributed to immense plants usages to mankind. For this, Pande and Dhar (2008) has defines ethnobotany as how people of particular region use different indigenous plants for the treatment of various diseases and other important local uses. The documented and economic use of plants can be traced back to 1500 BC when the Egyptians first used the papyrus and that of 2000 BC by the Chinese emperor Sheng Nung when he first compiled the list of medicinal plants (Sommer and Ross, 2010; Sofowora, 1982, 1984). Since, this era, man has continued to exploit plants for different usages. Plants provide an inevitable source of livelihood to humans and are the key pillars that hold and maintain the survival of any ecosystem. Yet despite their central importance, they are often poorly appreciated. The over dependence on the plant and it products for survival in rural part of Nigeria as also in other developing countries of the world had led some species to the verge of being and skewing several other species toward extinction. AbdulRahaman *et al.* (2006) has lamented that the extinct plant species might contain substance in them to prevent cancer or help to find a cure for AIDS (Acquired Immune Deficiency Syndrome). These loss is evidently affected by targeted species and mostly trees are preferred. Elsiddig (2003) and Alamu and Agbeja (2011) revealed that the dependence of people on trees and forests is unlimited; as almost 1.6 billion people in the world rely on forest resources for their livelihood and 1.2 billion people in developing countries use trees on farms to generate food and cash. As a result of high demand of firewood for livelihood in both the urban and rural areas, about 9.6 million hectares of rain forest is being cleared in the southern belt of Nigeria to meet up this insatiable resource (Nura *et al.*, 2011). This is also the case of

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livelihood communities living inside and around the forests in the dry lands, where they depends on the products and the services provided by the diversity of trees around them in various ways. In Nigeria there are about 560 spp. of tress (Redhead, 1971), but the existence of these species is in jeopardy, as the rate of ancestral habitat destruction, logging, deforestation, has increased in recent years. The rate of deforestation in Nigeria if not hindered or at least curtailed could lead to a dramatic lost of forest in a couple of years (Kabiru, 2008). It was estimated that in the northern Nigeria, about 400,00 ha of land is lost to deforestation every year (NNMDA, 2008). Lack of systematic study of usage and adequate conservation strategy has resulted in the loss of about 35% of arable land in 11 northern states of Nigeria and this has been swallowed by desert. This has affected the livelihood of over 55 million people, more than the combined population of Burkina Faso, Mali and Senegal. In fact, if this trend continues unchecked Nigeria will join the league of Ethiopia which has lost all its forests (Kabiru, 2008).

This study aimed to document the ethnobotanical knowledge of the indigenous trees species in this area with a view to providing information of the tree species so as to devise an effective means of conserving them for posterity.

STUDY AREA

This study was conducted in Abubakar Tafawa Balewa University, Yelwa Campus Bauchi, located in northeastern Nigeria, (established in 1980) between the periods of November 2008 and March 2009, the area is characterized by various floras, it has a flat land with a total area of approximately 114 ha, gently sloping from 200 and 300 m above sea level, surrounded in the vicinity of rolling hills, along eastern edge located between latitude 9.3 and 12.30° North and longitudes 8.50 and 11° East. The mean average annual rainfall of the area is between 900-1000 mm, mainly during the months of May to September; August is the wettest month with 340 mm of rain. The wet season has high diurnal temperature variation averaging 17 and 18°C in February. The mean maximum temperature ranges from 30-40°C and evaporation is usually 7-12 mm but can reach 17 mm. As a result, this becomes very rare for forest to occur in this area. The vegetation is largely affected by anthropogenic activities. What remains could be described as patches of savanna trees and shrubs. The terrain is flat and halfly represented by buildings, with a streamlet passing at corner, which gets swollen during the rainy seasons. The presence of derived savanna has been observed which is manmade, through the effects of grazing farming and fire burning, which usually occurs at different time of the season. Grasses species in this area do not exceed 60-80 cm long and they include different species of herbaceous grasses such as *Procumbens* spp., *Amaranthus* spp., *Mitarcarpus vellorusus* among others; the savanna grasses are dominated by coarse grasses such as *Andropogon* spp., *Penniseteum equiseteum*, *Imperata cylindrical* and *Panicum maxima*. Tress are relatively small dispersed and often are fire resistant including *Parkia biglobosa*, *Prosopis africana*, *Terminalia* spp. *Vitellaria paradoxa* and several other shrubs.

Sample collection: For sample collection, the vegetation was divided into 4 sampling plots and a 10×10 m quadrant was used and random sampling technique was employed within each quadrant and identification and nativity was done using local floras (Keay *et al*., 1964, 1989; Hutchison and Dalziel, 1954; Dalziel, 1937). Shannon and Weiner diversity index was used for the qualitative analysis of the species (Kent and Coker, 1985; Ubom, 2010). Given the equation:

$$H1 = \sum_{i=1}^{s} P_i \ln P_i$$

Where:

- H1 = Shannon-weiner index
- S = No. of species
- p_i = Proportion of individuals or abundance of the ith species expressed as a proportion of the total number of individuals of all species
- In = log base10

For the ethnobotanical studies, Participatory rural appraisal method was applied, people were interviewed in groups and individually within the neighbouring communities (Sabon kaura, Yelwa Lebura, Tudu and Makaranta), at some instances, samples were collected and taken to the traditional healers for usage of the trees using, several literature among (Burkill, 1995; Akinsoji, 1996; Adamu *et al*., 2005; Chronicle, 2005; Abdulhameed and Sharma, 2008). The usage categories were determined using simple statistical analysis.

RESULTS AND DISCUSSION

During this survey, about 2,467 trees were found growing in the study area; all belongs to 47 species 39 genera within 20 families (Table 1); of all the families recorded, Caesalpinoideae was found to be the most

Table 1: Total No. of species per family encountered in the study area

S/N	Family	Species per family	Total No. encounter
1	Anacardiaceae	4	174
2	Annonaceae	1	10
2	Bombacaceae	3	39
4	Caesalpinoideae	6	526
5	Chrysobalanaceae	1	8
6	Combretaceae	6	159
7	Ebenaceae	1	17
8	Euphorbiaceace	1	8
9	Hymenocardiaceae	1	14
10	Meliaceae	2	212
11	Mimosoideae	4	411
12	Moraceae	4	49
13	Moringaceace	1	17
14	Myrtaceae	2	206
15	Palmae	3	23
16	Papilionoideae	2	157
17	Rubiaceae	2	8
18	Rutaceae	1	24
19	Sterculiaceae	1	2
20	Verbenaceae	2	227
Total = 2,467			

dominant family with a total of 526 species (77%) density occurring in all the plots. Mimosoideae with 411 species (60%) followed by Meliaceae 381species (56%).

The families with least densities of occurrence were Rubiaceae 3 species (0.4%) and Sterculiaceae with 2 species (0.3%) of occurrence and subsequent families.

UTILIZATION PATTERN

The responses of the population on the diversity of the usage categories reveals that, of the 47 species of trees recorded, 42 species are used by the indigenous people surrounding the study area for medicinal purposes (40%), 19 species used as edibles (18%), 18 species went to other uses (17%), while 12 species used as fodder (8%) and 7 species used as timber (7%) (Fig. 1).

Plants parts utilization pattern indicates that, the bark of 30 species (27%), leaves of 26 species (23%), fruits of 20 species (18%). Roots of 13 species (12%), seeds of 11 species. Whole plant part of 7 species (6%). Whereas the inflorescence and flower of one species each (17%) and the latex of 3 species (3%), are used collectively for different purposes, as represented in Fig. 2.

Ironically, all species recorded has at least a single usage, with more species having multiple usage, (Table 2 for the summary of usage). This is an indication that the over dependence on this resources is much in such that, if adequate measures are not taken may lead to the extinction of threatened species and endangered the vulnerable ones. It was revealed that about 1.7 billion people rely on herbal drugs for their health care system and natural products, particularly of plants origin which remain the most important sources of new drugs (Odugbemi, 2006). Several authors have identified some of

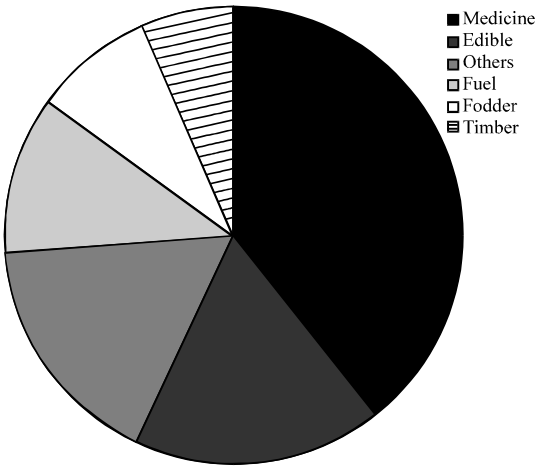

Fig. 1: Use pattern of the tree species in ATBU

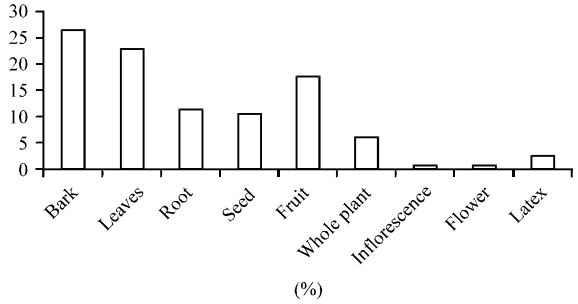

Fig. 2: Use pattern of the tree plant parts

the factors affecting biodiversity conservation in Nigeria, including land clearing for agriculture and uncontrolled logging, gathering of firewood overgrazing and deforestation among others (Durugbo *et al*., 2012). In this study, habitat destruction, subsistence farming and overgrazing is one of the stringent problems observed in this area, in fact with the increase in livestock and human population, more deforestation and overgrazing would be expected. The cattle herdsmen looped major trees in this area especially during the dry season, where grasses are completely dry up and served as fodder to their livestock and the debarking of certain species like *P. erinaceous*, *Sclerocarya birrea* which is in high demand. Continuous felling to pave way for infrastructure particularly and to some extent grazing has caused remarkably degradation, by altering soils and affecting soil and ecosystem processes and thus causes a remarkably deterioration on the phenotypes of members of the genus Ficus, Gardenia and Afzelia. However, all these disrupt the tree physiological functioning and stimulate a higher hormonal activity in order to close the wound quickly, (Nacoulma *et al*., 2011). Conserving these flora is a

Table 2: Indigenous knowledge of trees species of ATBU Bauchi-Nigeria

Family/taxa	Local/common name	Parts	Indigenous uses
Mimosoideae			
Acacia sieberiana DC	White thorn trees *farin kaya* (H) *gi'e daneeji*(F)	*Rt, Bk*	• Root infusion is drunk for the weakness of bones • Incense of the bark powder is used to chase evil spirit • Leaves decoction is vermifuge • Bark extract is taenifuge
Bombacaceae			
Adansonia digitata A.L.	Baobab *Ku'uka* (H) *okki* (F)	Rt, Bk, Lf, Fr (Pulp) Rt	• Boil bark and take to increase blood • Fruits (pulp) are used in flavouring drinks • Root decoction is used for stomach upset • Leaves powder is prepare as soup. • Bark infusion is used for toothache
Caesalpinoideae			
Afzelia africana Sm.	African oak *Ka'awo* (H) *ngaayoo*-hi/je (F)	Lf, Fr, Se, Bk	• Leaves use as fodder to increase milk production in cows • Seed bean dry and pound, soak in water and drink for skin problem • Soak bark in water and take two handful for stomach ache • The plant is known for febrifugal and analgesic property • Bark decoction is taken for constipation • The bark is said to be aphrodisiac • Fruit and shoot are use to control menstrual problem
Mimosoideae			
Albizia lebbeck (Linn.) Benth.	Women tongue acacia *doruwan bature* (H)	Wp, St, Sd, Fr, Lf	• Wood for fuel • Stem bark decoction used to treat bronchial asthma, eczema insect bite and other allergic disorders • Seed used as astringent for pile and diarrhoea • Leaf juice applied to eye for cure of night blindness
Anacardiaceae			
Anacardium occidentale Linn.	Cashew *kashew* (H)	Fr, Sd, Lf	• Fruits edible and are laxative • Seed edible as groundnut • Boil leaves with *N. laevis* for feverish relief
Annonaceae			
Annona senegalensis Pers.	Wild custard *gwandar daaji* (H) *dukuu*-hi /-je *ladde* (F)	Bk ,Lf Rt	• Boil root and take as snake antidote/repellent • Bark (inner layer) and root for gonorrhoea • The bark is used for blood clothing • Fruits is edible • Flower and bark are boiled and taken for dysentery • Boil bark or chew flowers for worms and dysentery
Combretaceae			
Anogeissus leiocarpus (D.C) Guill and perr.	*Marke* (H) *Kojoli* (F)	Bk, Sd, Lf, Wd, Rt	• Boil bark with potash, the decoction is drunk for cough • Bark decoction is taken for stomach worms and dysentery • Boil bark+garlic for nymonia • Bark is anthelminthic • Seed and leaves used as fodder • Root used as chewing stick • Wood is used in making implement such as mortar, hoe handle, etc. • Ash of the burnt wood is used as a dehairing agent in preparation of skins for the tanning bath • It is a laxative
Meliaceae			
Azadichrata indica A. Juss.	Neem *Dogon yaro* (H) *Ganyejee* (F)	Lf, Se, St	• Boiled leaves is taken for yellow fever (jaundice) • Seed used as enema in children • Stem as chewing stick • Root bark decoction is anthelminthic • Whole plant as wind break and avenues trees
Bombacaceae			
Bombax costatum	Kapok *gujiya* (H) *kuruhi* (F)	Rt, Lf	• Root decoction is taken for toothache • Flower inflorescence eaten as drown soup
Palmae			
Borassus aethiopium Mart.	Palmyra *giiginya* (H) *Dubbi* (F)	Fr , Rt, Lf, W p	• Mesocarp of fruit edible • Root of seedling edible • Whole plant used for timber making • Flower used as diuretic • Root decoction taken for back pain • The radicle and plumule of germinated seed (before leaf emergence) is put is put into aphrodisiac prescription • Decoction of young roots used for respiratory disorders and asthmas

Table 2: Continue

Family/taxa	Local/common name	Parts	Indigenous uses
Euphorbiaceae			
Bridelia ferruginea Benth.	Ditto *mburum* *mburum* (F)	Rt, Bk, Lf, St	• Bark, leaves and root infusion is given to children for thrush • Bark used to treat round worms and cystitis • Root sap used as fish poison • Stem-bark for skin infection
Caesalpinoideae			
Cassia sieberiana DC	W/Africa laburnum *malgahi* (F) *Gama fada* (H)	Bk, Rt, Fl, Sd, Lf, Fr	• The root is strongly purgative and diuretic • The leaves infusion is used as diuretic and febrifuge • The bark is remedy for rheumatism • Diuretic for jaundice, febrifugal, laxative • Fruits are vermifuge
Bombacaceae			
Ceiba pentandra (Linn.) Gaertn.	Silk cotton tree *Bantaa-je* (F) *Rimi* (H)	Bk, fl, Lf, Sd	• The leaves are used as an alternative laxative and an infusion is given as a cure for colic in man and in stock • Seed produce oil which is used for cooking and other industrial activity • Also the seed oil can be used to cure rheumatism • Whole tree is used as timber • Boil bark with potash for toothache • Bark infusion is taken as a febrifuge
Rutaceae			
Citrus aurantifolia (Christm.) Swingle	Lime *lemu tsami* (H)	Fr, Lf, Rt, Se, St	• Fruits are edible • Leaves, boil and inhale for fever • Juice from the fruits is added to food preparations as mildy laxative • The leaves, stem, root and fruit are used for the treatment of fever, jaundice, abdominal ulcer, gonorrhoea, measles and scurvy
Papilionoideae			
Dalbiergia sissoo Roxb.		All part, Lf	• Use as fuel wood • Use as ornamental • The leave is used as fodder to livestock • Root is astringent
Caesalpinoideae			
Daniellia olieveri (Rolfe) Hutch. and Dalz.	West African kopal *karlahi* (F) *Maaje* (H)	Sd, Bk, Lf,	• Boil seed to produce oil for rheumatism • Leaves as fodder to livestock • Bark decoction is drunk for cold • The gum is taken or swallow as, a purgative and it is taken in warm water for gonorrhoea dysentery aphrodisiac and diuretic and use for cough, headache, menses pain • Bark decoction for mouthwash against toothache • Back use for rheumatism etc. • Wood is used in producing mortar
Papilionoideae			
Delonix regia (Hook.) Raf.	Flamboyant flower	Fl and whole tree	• Flowers are used for experimental work in biological practical • Use as ornamentals plant • Seed are used for making percussion instrument such as • The bark is febrifugal and is recommended especially for intermittent fever • Leaf are use to prepare an analgesic ointment that is applied topically for generalized pain and a decoction to be taken by draught shak-shak
Ebenaceae			
Diospyros mespiliformis Desf. sensu lato	West Africa ebony *kanya* (H) *Nelbe* (F)	Fr, Lf, Bk, Rt, Wp	• Roots are consumed to purge parasites and is thought to be remedy for leprosy • Boil bark with potash to strengthen penis • Fruits are edible • Whole plant as timber
Myrtaceae			
Eucalyptus spp., Labii	*zaiti* (H)	Lf, Wp	• Boil leaves with lemon orange and take for cough • Whole plant used for timber • Leaves for the treatment of sore throat and other bacteria infections of the respiratory and urinary tract • Cure for asthma, catarrh and nasal congestion, fever, ulcer and wound and breath
Moraceae			
Ficus capensis	Fig tree *baure* (H)	Lf, Bk	• Leaves used as fodder • Boil bark to expel worms(vermifuge) • Leaves used for fencing of house and mat making

Table 2: Continue

Family/taxa	Local/common name	Parts	Indigenous uses
Moraceae			
Ficus glumosa Del.	*Baure* (H)	Root juice Lf, Bk	• Cut root and drink the juice for cough and difficulty in breathing • Boil bark and drink for diarrhoea
Moraceae			
Ficus sur Forsk.	*Farin baure* (H) Bush fig	Rt, lf	• Leaves use as fodder • Boil root with potash and drink for worms
Moraceae			
Ficus sycomorus Linn.	*Baure* (H) Sycamore fig	Lf, Fr, Rt	• Leaves use as soup • Fruits edible • Root latex for cough • Leaves are used in treating jaundice • Root is used as purgative
Verbenaceae			
Gmelina arborea Roxb.	*Malaina* (H) Gmelina trees	Lf, whole plant	• Leaves use as fodder to goat/livestock • Whole plant for timber • Planted as avenue trees and windbreaks • Bank use for diarrhoea, dysentery; emetics • Menstrual cycle, laxatives; food poisoning • Bark/leaf use for chicken pox, small-pox measure etc.
Hymenocardiaceae			
Hymenocardia acida Tul.	Jan yaro (H) *bo-eehi* (F)	Rt, Bk	• Boil root and take for sterility and aphrodisiac in men • Fresh bark is poultice • Root is added to local beverage and it gives mental and naval strength • Root decoction used as febrifuge and for mental strength • Ripe fruit used to cure deafness • Bark used against colic and as poultices on abscesses and tumors • The bark is used for aphrodisiac
Palmae			
Hyphenae thebiaca	*Goruba (H) gellee-hi/je* (F)	Fr	• Fruits are edible
Meliaceae			
Khaya senegalensis (Desr.) Juss.	Mahogany *madaci* (H) *Aalee-hi* (F)	Bk, Lf, Rt, Se	• Soak bark in water for worms expeller • Pound bark into powder for bile disease in cattle • Seed oil use for ear drop and for rashes (skin disease) • Bark use for the treatment of Ascaris or worms in cows/ruminant animals • Soak bark in water for Hyaenia • Bark decoction can be taken for heart disease • Latex applied for ear pain • Seed oil use for arthritis, rheumatism nasopharyngeal affections
Anacardiaceae			
Lannea acida A. Rich	*Bakin faru* (H) *Faruhi* (F)	Bk, Rt, Lf, Sd	• Bark is used by *Fulani's* as mat • Boil bark for pile • Bark infusion for ameliorating stomach troubles • Root bark for treating skin infection • Leaves as astringent and for treating toothache • Kernel is purgative
Anacardiaceae			
Mangifera indica. L.	Mango *mangoro* (H)	Fr, Lf, Bk	• Fruits are edible • Fruits juice taken for jaundice • Boil bark+leaves and steam bath for acute fever • Bark infusion for dysentery • Young fresh leaves decoction for diarrhoea
Moringaceae			
Moringa oleifera Lam.	Drum stick *zogale* (H) *Gaware* (F)	Lf, Bk, Fr	• Leaves as vegetable • Squeeze leaf juice and apply to the eyes for eye problems • Leaves and bark has antimicrobial activity • Used for water purification • Whole plant is used for house fencing • The root is used for the treatment of epilepsy, convulsions, pulmonary troubles, tumours and for oral treatment
Rubiaceae			
Nauclea latifolia Sm,	African peach *tafashiya* (H)	Rt, Lf, Bk, Fr, St	• Fruit edible • Boil root with potash for gonorrhoea • Boil root for stomach upsets • Soak root in water for stomach pains • Chew fresh leaves for stomach • Boil leaves for boated stomach and to induce defecation

Table 2: Continue

Family/taxa	Local/common name	Parts	Indigenous uses
			• Boil stem and take for yellow fever • Young fresh leaves is chewed for diarrhoea
Mimosoideae			
Parkia biglobosa (Jacq.) R Br. ex Don.	Locust bean *doruwa* (H) *Naree-hi/je* (F)	Fr, Se, Bk, Lf,	• Fruits edible • Fermented seeds are made into local magi; for seasoning food • Leaves are burnt and the ash used as substitute for potash • Boil bark and use as mouthwash for toothache • Fresh pods are used as fish poison • Ash from burnt wood is used in making soap
Chrysobalanaceae			
Parinari excelsa Sabine	*Tuwon biri* (H)	Fr, Bk, Rt	• Edible • Bark decoction for anaemia • Root decoction is used for rheumatism
Palmae			
Phoenix dactylifera Linn.	Date palm *debino* (H)	Fr	• Edible • Root is used as astringent
Caesalpinoideae			
Philiostigma thonningii (Schum)	Camel's foot *kargo* (H) *Barkee-hi* (F)	Rt, Lf	• Boil leaves and give to children for jedi-jedi • Soak root in water and drink for yellow fever • Boil leaves and drink for catarrh • Young fresh leaves in decoction is drunk for stomach pains
Mimosoideae			
Prosopis africana (Guill and Perr.) Taub.	Iron wood kirya (H) *Kahi* (F)	Se, Bk, Fr	• Seed use in making *daddawa* for seasoning • Boil bark and take for cough and catarrh • Boil bark and take for diarrhoea • Soak bark or in infusion is drunk for dysentery • The bark is thought to strengthen penis • Boil bark and drink for fever and diarrhoea • Bark used as enema for worms in children • The stem branch are used for making implements handles • The whole plant is burnt to produce charcoal
Myrtaceae			
Psidium guajava L.	Guava *gweba* (H)	Fr, Lf	• Fruits are edible as mildy laxative • Leaves pound, soak and filtered foe stomach ache in children • Boil leaves and take for dysentery • Boil leaves and inhale for fever • Immature leaves are chewed for diarrhoea
Pterocarpus erinaceous Pair	Blood tree *madobiya* (H) *Banuhi* (F)	Fr, wp	• Edible • Whole plant use as timber and fuel wood • Leaves use as fodder • Boil bark and take decoction to boost blood (very effective)
Anacardiaceae			
Sclerocarya birrea (A. Rich.) Hochst.	*Danya* (H) *Eeri* (F)		• Leaves for animal feed • Boil bark or soak in cow milk for dysentery • Dry leaf and take for ulcer • Bark for treatment and a prophylaxis malaria • Bark yield a red brown dye used in colouring traditional craft wears • Leaves are chewed upon to help indigestion and treat heart burn • Boil bark+sobo and take for hypertension
Sterculiaceae			
Sterculia setigera Del.	Karaya gum tree *Kukuki* (H) *Bobori* (F)	Rt, Bk, Se	• Boil root and drink for swollen part • Seeds are edible • Boil bark for menstrual period • Boil bark and give to barren women • Boil root and the decoction taken for urination problem • Boil bark with potash and the decoction is take to stimulate flow after birth to avoid retention of blood in the uterus • Bark in decoction is bath with for body pains • Gum from the bark is taken internally as an emollient and for soothing effect. It is also taken for all sorts of feverish states, for coughs, bronchial and pneumonia illnesses
Caesalpinoideae			
Senna siamea (Lam.) Irwin and Barneby	Siamese tree	Lf	• Boil leaves with *Tamarindus indica* for thyphoid fever, very effective • Boil leaves and the decoction is drunk for malaria

Table 2: Continue

Family/taxa	Local/common name	Parts	Indigenous uses
Caesalpinoideae			
Tamarindus indica Linn.	Tamarind *tsamiya* (H) *Jabbe'* (F)	Se, Fr, Lf, Bk	• Seed edible • Fruit/seed used in making porridge or gruel • Boiled leaves in decoction is drunk for fever • Fruits are used as purgative • Fruit infusion is drunk as mildy laxative • Fruit/seed are used as blood tonic • Bark is astringent
Combretaceae			
Terminalia catappa Linn.	Almond tree	Fr	• Whole tree provides shade in a compound • Fruits are edible
Combretaceae			
Terminalia glaucescence Planch. Ex. Benth.	*Baushe* (H)	Bk, Wp, Fr, Rt,	• Bark use for dysentery • Boil bark and rinse mouth for toothache • Whole plant use as fuel wood • Whole plant use for making implements. The bark is chewed as a laxative • The bark decoction is taken as a purgative • The fruit is used as a vermifuge • The root are chewed as a laxative • The root are chewed as a chewed sticks and are held to have aphrodisiac properties
Combretaceae			
Terminalia laxiflora Engl.	*Farin baushe* (H)	Wp, Rt, Bk	• Boil bark with red potash for bilharzias • Root decoction is taken for hypertension • Boil stem in hot water for diarrhoea
Combretaceae			
Terminalia macroptera Guill and Perr.	*Baushe* (H) *Kuulahi* (F)	Bk, Lf	• Bark taken as dysentery • Leaf and bark is taken for worm expeller in children
Combretaceae			
Terminalia spp.	*Baushe* (H)	Wp	• Whole plant use as fuel wood
Verbenaceae			
Vitex doniana Sweet	Black plum *Dinya* (H) *Ngalbiihi* (F)	Lf, Fr, Bk, Wp	• Young immature leaves are edible • Fruits are edible • Women eat the leaves after birth to cleanse blood • Boil leaves help in dysentery curing • Boil bark and for skin problem • Boil bark with sobo for hypertension • Soak bark in water and give cattle to take for worms • Whole tree is used as timber • Whole trees is used for fuel wood
Sapotaceae			
Vitellaria paradoxum Gaertn. F.	Shea butter *Kadanya* (H) *Karehii* (F)	Lf, Fr, Bk, Se	• Fruits edible and seed produced oil • Seed oil is used for dislocation • Boil bark and used enema for worms in children • Oil from seed to smoothen wound scars • Boiled bark decoction is taken for mouth wash • Bark is antibiotic and used for treating body swelling • Root used for fever and jaundice • Leaf decoction for treating eye trouble • Seed effective as stimulant and is carminative

Key to parts used, Bk: Bark, Rt: Root, Sd: Seed, St: Stem, Fl: Flower, Fr: Fruit and Wp: Whole plant. Key to common names: H: Hausa, F: Fulani, ATBU: Abubakar Tafawa Balewa University Bauchi

intrinsic responsibility for all mankind (http://www.iucn.org/), but this is far from the case, as the rate of destructive anthropogenic activities on the flora and biodiversity at large escalates daily with nearly 90% of forest in Nigeria cleared (Kabiru, 2008; Alamu and Agbeja, 2011) and several developing countries of the world. In this study we looked comprehensively on the flora resources through the diversity of indigenous uses, which is also a way of taking inventory of the species present; as this has provided an insight on how to deduce a suitable conservation strategy.

CONCLUSION

This study has highlighted the ethnobotanical importance of tree species in the study area and the threats the floral composition are facing as a result of anthropogenic activities. There is the need to sustainably

conserve the remaining vegetation, through sensitization and enlightenment campaigns, establishing botanical garden and herbarium.

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