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An ethnobotanical survey of the Savanna: (6) The medicinal plants of Birshin Fulani, Bauchi, Bauchi State, Nigeria.

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Abstract

Ethnobotanical data were collected through Key Informant Interviews (KII) conducted with eight experienced traditional herbal practitioners in Birshin Fulani, a rural settlement located on the outskirts of Bauchi metropolis, Bauchi State, Nigeria, between April and July 2021. The study aimed to document indigenous knowledge of medicinal plants used in the management of human ailments within the community. Data were obtained using semi-structured interviews focusing on plant identity, local names, parts utilized, preparation methods, and therapeutic indications. A total of 37 medicinal plant species belonging to 25 botanical families were documented as being utilized in the treatment of 21 different human health conditions. Quantitative ethnobotanical analysis using the Relative Frequency of Citation (RFC) index revealed that *Vachelia nilotica* was the most frequently cited species, with an RFC value of 0.500, indicating its prominent role in traditional therapeutic practices in the study area. Other highly cited species included *Boswellia dalzielii*, *Pterocarpus erinaceus*, *Parkia biglobosa*, and *Detarium microcarpum*, each with an RFC of 0.375, suggesting their widespread recognition and application in local ethnomedicine. Family-level analysis indicated that Fabaceae was the most represented family with nine species, reflecting its ecological abundance and ethnomedicinal importance in the region. This was followed by Anacardiaceae and Combretaceae, each represented by four species. To ensure botanical authenticity and facilitate future taxonomic verification, voucher specimens of all recorded plants were collected, processed, and deposited in the Herbarium of the Department of Biological Sciences, Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria. The findings highlight the rich ethnobotanical knowledge preserved among local herbalists and underscore the potential of these plant species as sources of bioactive compounds. Further phytochemical, pharmacological, and toxicological investigations are recommended to scientifically validate their therapeutic efficacy, while broader ethnobotanical surveys in neighboring communities may help preserve and expand existing traditional medicinal knowledge.

Keywords

Ethnomedicine,
Herbal medicine,
Traditional medicine,
Ethnopharmacy.

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Introduction

A detailed introduction to the subject may be found in Dukku (2022). The present study reports the medicinal plants of Birshin Fulani.

Materials and methods

Description of the study area

Birshin Fulani, located in the outskirts of Bauchi town, off Bauchi-Dass Road, is a predominantly Fulani community. The main occupations of the people are trading and farming.

Collection of ethnobotanical data

The ethnobotanical study was conducted between April and July 2021. A key informants' interview (KII) was used for the collection of ethnobotanical data from eight herbalists. The interview was conducted in Hausa and Fulfulde languages. Vernacular names of the plants, their medicinal uses, the part used and the mode of preparation and administration were recorded. The relative frequency of citation (RFC), an indicator of the relative importance of the plant, was obtained by dividing the number of citations of the plant by the total number of informants.

Collection and preservation of voucher specimens

Specimens of the plants mentioned by the informants were collected in the outskirts of Bauchi town. They were separately placed between newspapers and tied firmly in a plant press with a strong rope and left for three to four days for proper drying. The dried specimens were mounted on a white cardboard paper, using

glue, and labelled appropriately. The plants were identified by the first author using determination keys (Arbonnier, 2004; Hopkins & Stanfield, 1966), where necessary.

Results and discussion

This study reports the plants used in the traditional medicine of Birshin Fulani. A total of 37 plants, belonging to 25 families, used in the treatment of 21 conditions in humans, were collected. These conditions varied from symptoms, such as cold, to infectious diseases like gonorrhoea. The family that had the largest number of species was Fabaceae (nine species), followed by Anacardiaceae and Combretaceae (with 4 species each). The most cited plant was *Vachelia nilotica*, with RFC of 0.500; followed by *Boswellia dalzielli*, *Pterocarpus erinaceus*, *Parkia biglobosa* and *Detarium microcarpum* with RFC of 0.375 each (Tables 1 and 2).

In a similar study carried out in Niger, *V. nilotica* and *B. dalzielli* were as well among the most cited plants (Manzo *et al.*, 2017). *Pt. erinaceus* and *D. microcarpum* were reported to have anticancer properties (Ngulde *et al.*, 2014) while *P. biglobosa* is a plant with multiple uses (Amusa *et al.*, 2010; Babarinde *et al.*, 2013; Dukku, 2010; Oni & Kayode, 2018). Woody vegetation formed the bulk of the plants (94.6%) while the contribution of herbaceous vegetation was 5.4% only. The stem was the most common part of the plant used (40% of the citations) while decoction was the most common method of preparation

of the crude drug. 16 (i.e., about 43%) of the 37 plants recorded in this study were also recorded in a previous study in adjoining Buli communities (Dukku and Mohammed, 2026): This suggests the existence of cultural exchange between neighbouring communities.

However, an absolute match, where the same part of the same species was used in treating the same condition, occurred in five (i.e., about 14%) plants only: *Annona senegalensis*, *Anogeissus leiocarpus*, *Parkia biglobosa*, *Tamarindus indica* and *Vitex doniana*. This underscores the importance of these plants in the communities while suggesting that ethnobotanical studies can hardly be exhaustive. Voucher specimens of the plants were deposited in the herbarium of Abubakar Tafawa Balewa University, Bauchi, Nigeria.

Conclusions

This study has documented the traditional use of plants in the treatment of various conditions in humans in Birshin Fulani. We recommend further scientific investigations, to test the medicinal properties of these plants, and the extension of the survey to neighbouring communities.

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Table 1 Plants used in the treatment of human diseases in Birshin Fulani

Serial No	Scientific Name	Part used	Medicinal uses	Mode of preparation	RFC
1.	<i>Adansonia digitata</i>	Stem bark	Blood tonic	Decoction taken orally	0.250
2.	<i>Allium sativum</i>	Bulb	Asthma	Paste taken orally with honey	0.125
3.	<i>Annona senegalensis</i>	Stem bark	Peeling of skin	Decoction for bathing	0.125
4.	<i>Anogeissus leiocarpus</i>	Stem bark/Leaf	Cough/dysentery	Decoction taken orally	0.125
5.	<i>Azadirachta indica</i>	Leaf /Stem bark	Typhoid/stomach ache	Decoction taken orally	0.250
6.	<i>Balanites aegyptiaca</i>	Leaf (tender)	Cataract	Infusion as eye drops	0.125
7.	<i>Bombax costatum</i>	Stem bark	Haemorrhoids	Decoction for sit bath	0.125
8.	<i>Boswellia dalzielli</i>	Stem bark	Cold/typhoid	Decoction taken orally	0.375
9.	<i>Calotropis procera</i>	Stem bark	Wound	Powder applied to the wound	0.125
10.	<i>Carica papaya</i>	Leaf	Gonorrhoea	Decoction taken orally	0.250
11.	<i>Citrus aurantifolia</i>	Fruit	Cold	Juice taken orally	0.250
12.	<i>Cochlospermum tinctorium</i>	Root	Typhoid	Decoction taken orally	0.250
13.	<i>Combretum nigricans</i>	Stem bark	Dysmenorrhoea	Decoction taken orally	0.125
14.	<i>Combretum nigricans</i>	Leaf	Jaundice	Decoction taken orally	0.125
15.	<i>Detarium microcarpum</i>	Stem bark/Root	Neck pain	Decoction taken orally	0.375
16.	<i>Entada africana</i>	Stem bark	Anaemia	Decoction taken orally	0.125
17.	<i>Ficus sycomorus</i>	Stem bark	Haemorrhoids	Decoction for sit bath	0.250
18.	<i>Grewia cissoids</i>	Root	Stomach ache	Powder taken orally with water	0.125
19.	<i>Guiera senegalensis</i>	Root	Haemorrhoids	Decoction for sit bath	0.125
20.	<i>Jatropha curcas</i>	Seed	Worms/haemorrhoids	Decoction for enema	0.250
21.	<i>Kigelia africana</i>	Leaf	Jaundice	Decoction taken orally	0.250
22.	<i>Lannea acida</i>	Stem bark	Skin infection	Powder mixed with petroleum jelly for topical application	0.125
23.	<i>Lannea microcarpa</i>	Root + natron	Gonorrhoea	Decoction taken orally	0.125
24.	<i>Mangifera indica</i>	Stem bark	Tooth ache	Decoction for mouth wash	0.250
25.	<i>Maytenus senegalensis</i>	Stem bark	Tonic	Powder taken with gruel	0.250
26.	<i>Moringa oleifera</i>	Leaf	Diarrhoea/peptic ulcer	Decoction taken orally	0.250
27.	<i>Moringa oleifera</i>	Stem bark + leaf	Hypertension	Decoction taken orally	0.250
28.	<i>Nauclea latifolia</i>	Root	Hyperglycaemia	Powder taken orally with any vehicle	0.250

29.	<i>Parkia biglobosa</i>	Leaf	Burn	Ash applied topically	0.375
30.	<i>Psidium guajava</i>	Leaf	Pain	Pounder taken in water	0.125
31.	<i>Pterocarpus erinaceus</i>	Root	Amenorrhoea	Decoction taken orally	0.375
32.	<i>Pterocarpus erinaceus</i>	Stem bark	Anaemia	Decoction taken orally	0.375
33.	<i>Sclerocarya birrea</i>	Stem bark	Breast abscess/hypertension	Powder applied topically and taken with gruel	0.250
34.	<i>Securidaca longepedunculata</i>	Root	Frontal headache	Powder used as snuff.	0.125
35.	<i>Senna singueana</i>	Root	Body pains	Decoction taken orally.	0.125
36.	<i>Tamarindus indica</i>	Leaf	Rashes	Decoction for bathing.	0.125
37.	<i>Vachelia nilotica</i>	Fruit (pod)	Sepsis	Powder made into a paste for topical application.	0.250
38.	<i>Vitellaria paradoxa</i>	Leaf + Root	Dysentery	Decoction taken orally.	0.250
39.	<i>Vitex doniana</i>	Stem bark	Rectal prolapse	Decoction for sit bath.	0.125
40.	<i>Ximenia americana</i>	Leaf/Root	Hypertension	Decoction taken with honey and lime.	0.250

Table 2 Checklist of medicinal plants of Birshin Fulani

Voucher No	Scientific name	Family	Habit	Hausa name	Fulfulde name
EB-21-001	<i>Adansonia digitata</i>	Bombacaceae	Tree	Kuka	Bokki
EB-21-002	<i>Allium sativum</i>	Amaryllidaceae	Herb	Tafarnuwa	Kaagirmo
EB-21-003	<i>Annona senegalensis</i>	Annonaceae	Shrub	Gwandar jeji	Dukuhi
EB-21-004	<i>Anogeissus leiocarpus</i>	Combretaceae	Tree	Marke	Kojoli
EB-21-005	<i>Azadirachta indica</i>	Meliaceae	Tree	Dogon yaro	Niimhi
EB-21-006	<i>Balanites aegyptiaca</i>	Balantiaceae	Tree	Adua	Tanni
EB-21-007	<i>Bombax costatum</i>	Bombacaceae	Tree	Gurjiya	Jooyehi
EB-21-008	<i>Boswellia dalzielli</i>	Burseraceae	Tree	Ararrabi	Andakehi
EB-21-009	<i>Calotropis procera</i>	Asclepiadaceae	Shrub	Tumfafiya	Bambambi
EB-21-010	<i>Carica papaya</i>	Caricaceae	Tree	Gwanda	Buusehi
EB-21-011	<i>Citrus aurantifolia</i>	Rutaceae	Tree	Lemun tsami	Leemuhi
EB-21-012	<i>Cochlospermum tinctorium</i>	Cochlospermaceae	Herb	Rawaya	Jaarundal
EB-21-013	<i>Combretum nigricans</i>	Combretaceae	Tree	Zindi	Buuski
EB-21-014	<i>Detarium microcarpum</i>	Fabaceae	Tree	Taura	Konkehi
EB-21-015	<i>Entada africana</i>	Fabaceae	Tree	Tawatsa	Padawaanduhi
EB-21-016	<i>Ficus sycomorus</i>	Moraceae	Tree	Baure	Yibbi
EB-21-017	<i>Grewia cissoids</i>	Tilliaceae	Shrub	Gwaiwar kare	Ciiyi
EB-21-018	<i>Guiera senegalensis</i>	Combretaceae	Tree	Sabara	Gelooki
EB-21-019	<i>Jatropha curcas</i>	Euphorbiaceae	Shrub	Bini da zugu	
EB-21-020	<i>Kigelia africana</i>	Bignoniaceae	Tree	Nonon giwa	Jillahi
EB-21-021	<i>Lannea acida</i>	Anacardiaceae	Tree	Faru (Fari)	
EB-21-022	<i>Lannea microcarpa</i>	Anacardiaceae	Tree	Faru (baki)	Nebbamhi
EB-21-023	<i>Mangifera indica L.</i>	Anacardiaceae	Tree	Mangwaro	Mongorohi
EB-21-024	<i>Maytenus senegalensis</i>	Celastraceae	Tree	Nami jin tsada	Yaayeleddehi
EB-21-025	<i>Moringa oleifera</i>	Moringaceae	Tree	Zogale	
EB-21-026	<i>Nauclea latifolia</i>	Rubiaceae	Tree	Tafashiya	Bakuurehi
EB-21-027	<i>Parkia biglobosa</i>	Fabaceae	Tree	Dorawa	Narehi
EB-21-028	<i>Psidium guajava</i>	Myrtaceae	Tree	Goba	Goybahi
EB-21-029	<i>Pterocarpus erinaceus</i>	Fabaceae	Tree	Madobiya	Banohi
EB-21-030	<i>Sclerocarya birrea</i>	Anacardiaceae	Tree	Danya	Eedi
EB-21-031	<i>Securidaca longepedunculata</i>	Polygalaceae	Tree	Sanya	Aalali
EB-21-032	<i>Senna singueana</i>	Fabaceae	Tree	Rumfu	Balebalehi
EB-21-033	<i>Tamarindus indica</i>	Fabaceae	Tree	Tsamiya	Jatami
EB-21-034	<i>Vachelia nilotica</i>	Fabaceae	Tree	Gabaruwa	Gabdi
EB-21-035	<i>Vitellaria paradoxa</i>	Sapotaceae	Tree	Kadanya	Kaarehi
EB-21-036	<i>Vitex doniana</i>	Vitaceae	Tree	Dinya	Bumnehi
EB-21-037	<i>Ximenia americana</i>	Olacaceae	Shrub	Tsada	Cabulli

References

- Amusa, T., Jimoh, S., Aridanzi, P., & Haruna, M. (2010). Ethnobotany and Conservation of Plant Resources of Kainji Lake National Park, Nigeria. *Ethnobotany Research and Applications*, 8: 181-194. <https://doi.org/10.1234/era.v8i0.349>
- Arbonnier, M. (2004). *Trees, shrubs and lianas of West African dry zones*. CIRAD, Montpellier (France); MARGRAF Publishers GmbH, Weikersheim (Germany) and MNHN, Paris (France).
- Babarinde, S. A., Adesina, G. O., Akanbi, M. O., & Olaiya, J. I. (2013). Trees Bees Use: *Parkia biglobosa*. *Bees for Development Journal*, 106.
- Dukku, U. H. (2010). *Parkia biglobosa*: An important honeybee forage in the Savanna. *Bee World*, 87(3): 28-29.
- Dukku, U. H. (2022). An ethnobotanical survey of the Savanna: (1) General introduction. *Science Forum (Journal of Pure and Applied Sciences)*, 22(3): 1-5. <https://doi.org/http://dx.doi.org/10.5455/sf.141214> [DUK](https://doi.org/http://dx.doi.org/10.5455/sf.141214)
- Dukku, U. H. & Mohammed, U. N. (2026). An ethnobotanical survey of the Savanna: (5) The medicinal plants of Buli Communities in Bauchi, Bauchi State, Nigeria. *Science Forum (Journal of Pure and Applied Sciences)*, 26(1): 172-177.
- Hopkins, B., & Stanfield, D. P. (1966). *A field key to the savanna trees of Nigeria*. Ibadan University Press, Ibadan, Nigeria.
- Manzo, L. M., Moussa, I., & Ikhri, K. (2017). Ethnobotanical Survey: A comprehensive review of medicinal plants used against gastrointestinal disorders in Niger, West Africa [Review Article]. *Jundishapur J Nat Pharm*

- Prod, 12(4): e65730.
<https://doi.org/10.5812/jjnpp.65730>
- Ngulde, S., Sandabe, U., & Hussaini, I. M. (2014). Ethnobotanical survey of anticancer plants in Askira/Uba local government area of Borno state, Nigeria. *Planta Medica*, 80. <https://doi.org/10.1055/s-0034-1382703>
- Oni, O. G., & Kayode, J. (2018). Ethno-Medicinal assessment of wild edible plants in Ijesa Region, Osun State, Nigeria. *Bulletin of Pure & Applied Sciences- Botany*, 37b: 89. <https://doi.org/10.5958/2320-3196.2018.00013.7>