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Compilation and Checklist of Medicinal and Aromatic Plants on Mambilla Plateau in Taraba State, Nigeria

Musa Umar[1], Sawa Fatima Binta Jahun[1], Suleiman Dangana Abdul[1], Daniel Andrawus Zhigla[2], & Muhammed Abubakar Liman[1&3]

[1]Department of Biological Sciences,
Abubakar Tafawa Balewa University Bauchi,
Nigeria.

[2]Department of Biological Sciences,
Gombe State University Gombe,
Nigeria.

[3]Department of Biological Sciences,
Sa'adu Zungur University
Bauchi State.

Email: musaumar9539@gmail.com

Abstract

The Mambilla Plateau, located in Taraba State, Nigeria, is renowned for its rich biodiversity, including a vast array of medicinal and aromatic plants that are crucial for both the local ecosystem and the indigenous communities' healthcare practices. Medicinal and Aromatic plants on Mambilla Plateau provide many ecosystem services including provisional, supporting and regulation service as well as maintaining ecosystem properties. On Mambilla Plateau some plants serve both medicinal and aromatic including Clausena anisata and Zanthoxylum leprieurii. This study aims to compile a comprehensive checklist of medicinal and aromatic plant species on the Mambilla Plateau, emphasizing their botanical names, families, and traditional uses. Seventeen medicinal and aromatic plants belonging twelve families were recorded. nine families are represented by one species from each family while two families are represented by two species from each family and one family was represented by four species. Notably family Lamiaceae contains medicinal and aromatic species. By documenting these species, this paper seeks to contribute to the conservation efforts, sustainable development goals, sustainable use of medicinal and aromatic plants resources and other ecosystem services of medicinal and aromatic plants in the region.

Keywords: Compilation, checklist, medicinal, aromatic, plants

INTRODUCTION

In West Africa, Nigerian forests ranked high for biodiversity hot spots and global significance for conservation priority (Myers *et al.,* 2000) including Nigerian tropical rain forest (Borokini, 2012). Despite establishments of forest reserves and protected areas in West Africa including Nigeria, biodiversity loss happens because of destructive human activities and climate change. According to Nodza *et al.,* 2013 plants provide an inevitable source of livelihood to

**Author for Correspondence*

humans and they are the key pillars that hold and maintain the survival of any ecosystem. Yet despite their vital position, sometimes they are often poorly appreciated. According to Kutama *et al.,* 2015, plants are gift of nature to mankind whose uses were discovered by man even before civilization. Plants provides many ecological services such as provisional services, regulating service and cultural service. The over dependence on the plants and its products for survival in many rural areas of Nigeria is unlimited, leading unsustainable harvesting of plants resource, these activites remain threats to plants biodiversity Odoligic *et al.,* 2020.

On Mambilla Plateau, there are unique climatic conditions and topography, hosts an exceptionally diverse flora, much of which comprises herbaceous species with significant ethnobotanical applications. Despite its ecological and socio-economic importance, there has been limited documentation of the medicinal and aromatic plants including herbal species diversity on the plateau. Previous authors work on plants without compilation and checklist of medicinal and Aromatic plants emphasizing on their local uses. This research aims to fill this gap by providing a detailed checklist of medicinal and aromatic plants present and used within the area of Mambilla Plateau which could serve as a foundational resource for further botanical, ecological, and ethnobotanical studies through these objectives including collection and prepare voucher specimens and developed checklist of medicinal and aromatic plants on Mambilla Plateau.

MATERIALS AND METHODS

Study Area

The study was conducted in a gazetted area called Ngel Nyaki Forest Reserve which located on Mambilla Plateau, situated in Taraba State, Nigeria. The study area is situated between latitude 07^0N 05′ and longitude 011^0 05′E at an altitude of 1,400m - 1,600m above sea level. Ngel Nyai Forest Reserve is closer to Cameroon border. Mambilla Plateau is characterized by its high elevation, varying landscapes, and a climate that supports a wide range of plant species.

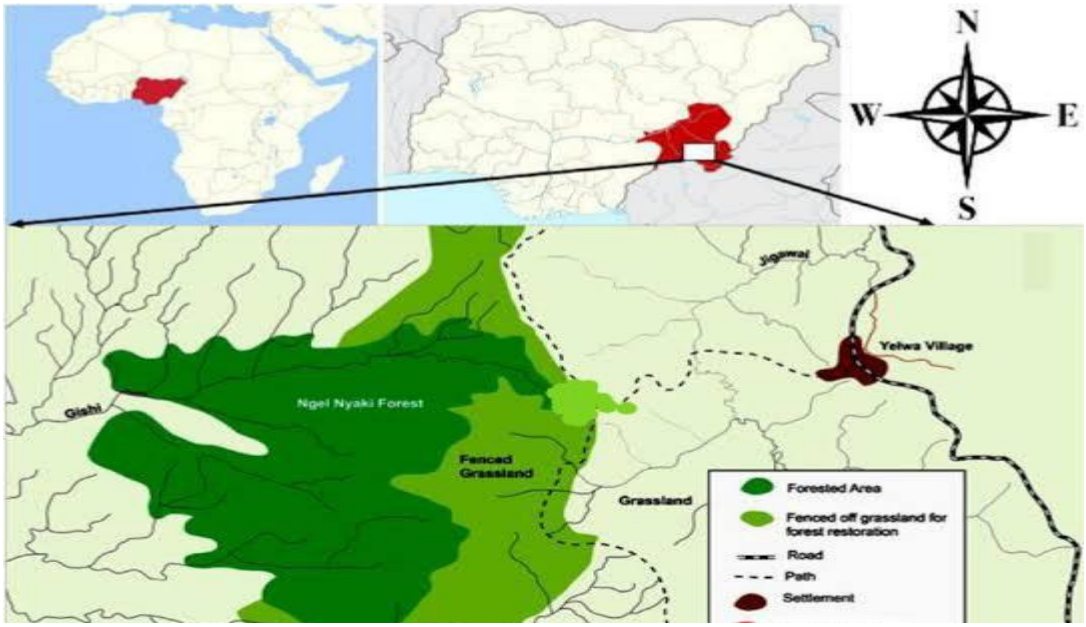

Fig. 1: Map of Nigeria showing Taraba State and Ngel Nyaki Forest Reserve in light and dark green colors. (Source: Toma Buba & Ridwan Muhammad Jafar, 2021)

Data Collection
Field surveys were carried out in one week from beginning August 2023 and ended in August 2023, employing stratified random sampling techniques to collect specimens across different parts of the plateau. Information on local uses was gathered from indigenous communities.

Specimen identification and authentication
Collected specimens were identified with the help of taxonomic keys, book including Flora of West Tropical Africa, available illustrations and relevant literatures. Specimens were verified and authenticated by comparison with available herbarium specimens from local herbarium (Nigerian Montane Forest Project Ngel Nyaki Forest Reserve) and verified by comparing with journal storage (JSTORE) online specimens and plants of the world online (POWO).

RESULTS
A total of 17 medicinal and aromatic plants belonging to 12 families were recorded, with family Lamiaceae having the highest number of species recorded with 4 species, followed by family Fabaceae and Rutaceae. Other families are having 1 species recorded as medicinal and aromatic plants as shown in table 1.

Table 1: List of Medicinal and Aromatic plants recorded on Mambilla Plateau

Family	Species
Anacardiaceae	*Mangifera indica* L.
Cannabaceae	*Trema orientale* (L.) Blume
Burseraceae	*Santiria trimera* (Oliv.) Aubrev.
Fabaceae	*Daniella oliveri* (Rolfe) Hutch. & Dalziel
	Piliostigma thonningii (Schumach.) Milne-Redh.
Gentianaceae	*Anthocleista vogelii* Planch.
Hypericaceae	*Psorospermum aurantiacum* Engl.
Lamiaceae	*Micromeria imbricata* (Forssk.) C.Chr.
	Ocimum americanum L.
	Thymus sp
	Vitex doniana Sweet.
Myrtaceae	*Psidium guajava* L.
Poaceae	*Cymbopogon schoenanthus* (L.) Spreng.
Rutaceae	*Clausena anisata* (Willd.) Hook.f. ex Benth.
	Zanthoxylum leprieurii Guill. & Perr.
Thymelaeaceae	*Dicronolepis grandiflora* Engl.
Zingiberaceae	*Aframomum angustifolium* (Sonn.) K.Schum.

In table 2 below, present list of medicinal and aromatic plants used by locals of Mambilla Plateau.

Table 2: List of Medicinal and Aromatic plants from Mambilla Plateau and their local uses

Scientific name	Parts of plant used	Traditional uses
Mangifera indica	bark	body weakness and malaria
Trema orientale	leaves	body pain relief
Santiria trimera	leaves	spiritual perfume & spiritual purpose
Daniella oliveri	bark	menstruation problems
Piliostigma thonningii	bark	treatment of ulcer
	leaves	treatment of gonorrhea
Anthocleista vogelii	root & bark	treatments of gonorrhea
Psorospermum aurantiacum	bark	treatment of leprosy
Micromeria imbricata	whole plant	tea and food preparation
Vitex doniana Sweet.	bark	treatment of headache

	leaves	treatment of leprosy
Psidium guajava	leaves	treatments of stomach problems
	root	treatments of gonorrhea
Cymbopogon schoenanthus	leaves	tea preparation
Clausena anisata	leaves	toothache pain relief
	root	toothache pain relief
Zanthoxylum leprieurii	root	treatments of general body weakness and sexual transmitted disease
Dicronolepis grandiflora	whole plant	food spice
Aframomum angustifolium	whole plant	food spice

Figure 2: A. *Zanthoxylum leprieurii*, B. *Aframomum angustifolium,* C. *Cymbopogon schoenanthus* D. *Anthocleista vogelii.* Photos: A-D: Musa Umar. 2023.

DISCUSSION

The checklist highlights the rich of medicinal and aromatic plants diversity on the Mambilla Plateau and underscores the importance of these resources for conservation planning and practices. Several species documented have been previously reported by Akinsoji, (1996) for their medicinal properties, supporting their ethnomedicinal relevance.

The study also identifies gaps in the current knowledge and suggests areas for further research, particularly in phytochemical and pharmacological studies of these medicinal and aromatic plants. *Sentiria trimera* is medical plant and among trees of Ngel Nyaki Forest Reserve as reported by Akinsoji, (1996). Some aromatic plants on Mambilla plateau are herbs while some are trees and shrubs.

CONCLUSION

This checklist of medicinal and aromatic plants on the Mambilla Plateau is a crucial step towards understanding the region's botanical diversity and its potential for contributing to healthcare, conservation, and sustainable development goals. It provides a valuable resource for researchers, policymakers, and local communities in their efforts to preserve and utilize the rich herbal heritage of the plateau.

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REFERENCES

Aderopo A. (2013). Vegetation Analysis of Ngel Nyaki Forest Reserve, Mambilla Plateau, Nigeria. *Journal of Natural Science Research.* Vol 3.

Aderopo A. (1996). The vegetation types and ethnobotanical studies of Gashaka Gumti National Park, 82 pp.

Akinsoji A. 2003. Montane Vegetation of Chabbal Hendu in Gashaka Gumti National Park, Nigeria. *Journal of Pure and Applied Sciences,* **6:** 80-88..

Borokini, T.I., Babalola, F.D., Amusa, T.O., Ivande, S.T., Wala, Z.J. & Jegede. O.O. *et al.* (2012). Community-based forest resource management in Nigeria: Case study of Ngel Nyaki Forest Reserve, Mambila Plateau, Taraba State, Nigeria. *Journal of Tropical Forestry and Environment.* Vol 2 no 01 (2016) 69-76

Borokini, T.I. (2014). A systematic compilation of endemic flora in Nigeria for conservation management. *Journal of Threatened Taxa,* **6** (11), 6406-6226.

Borokini T.I., Fola. D.B., Tajudeen, O.A., Samuel, T.I., Zengfa, J.W., Olubunmi, O.J., Dauda, T., & Jerome, O.T. (2012). Tropical montané forest biodiversity in Nigeria- case study of of Ngel Nyaki Forest Reserve, Mambilla Plateau. *International Journal of Environmental Sciences.* Vol 1 no 2.2012 pp 95-104.

Chapman, J.D. & Chapman, H.M. (2001). The Forest of Taraba and Adamawa States, Nigeria. An ecological account and plants species checklist. Departments of Plant & Microbial Sciences University of Canterbury, Christchurch, New Zealand.

Hutchinson, J. and Dalziel, J. M. (1954). Flora of West Tropical Africa, second edition vol 1-3. Hemper, F.N., Crown agents, London

International Union for Conservation of Nature (2022). 1UCN red list of threatened species. version 2022-2. www.iucnredlist.org

JSTOR (2013). Journal storage. Global plants database. http://plants.jstor.org

Kutama, A.S., Dangora, I.I., Aisha, W. Auyo, M.I., Sharif, U. Umma, M *et al.,* (2015). An overview of plant resources and their economic uses in Nigeria. Global Advanced Research Journal of Agricultural Science (ISSN: 2315-5094) Vol. 4(2) pp. 042-067.

Myers N., Mittermeier RA., Mittermeier CG., de Fonseca GAB., Kent J., 2000. Biodiversity hotspots forconservation priorities. Nature 403.

Nodza, I.G., Abdulhameed, A. & Abdullahi, M.B. (2013). A Checklist and Ethnobotanical Assessement of Trees Species of Abubakar Tafawa Balewa University (ATBU) Yelwa Campus Bauchi, Nigeria. *International Journal of Botany, 9: 55-63.*

Odoligic I., Wisdom, O.E., Beluchukwu J.N. (2020). A review of the biodiversity conservation status of Nigeria. *Journal of Wildlife Biodiversity,* **4** (1), 73-87. (http://jwb.araku.ac.ir/)

Olorode, O. (1983). Taxonomy of West African Flowering Plants**.** Longman, London.

POWO (2023). Plants of the world online. Facilitated by Royal Botanical Gardens, Kew. http://www.plantsoftheworldonline.org/

Struwe, L. (2009). Field identification of 50 most common plants families in temperate regions. (Including agricultural, horticultural and wild species). Rutgers University, New Brunswick. NJ, USA.

Toma, B. & Ridwan, M.J. (2021) Impact of trees species and functional traits on birds visitation in Nigerian montane forest: Implications for conservation. Scientific African 12(12): e00783 DOI: 10.1016/j.sciaf. 2021.e00783