ABUAD INTERNATIONAL JOURNAL OF NATURAL AND APPLIED SCIENCES
ISSN: 2955-1021
AIJNAS Volume 5, Issue 2, 2025 pp 109-114
https://doi.org/10.53982/aijnas.2025.0502.04-j

https://journals.abuad.edu.ng/index.php/aijnas

Ficus exasperata (VAHL), A TREE OF HIGH MEDICINAL VALUE AND ECONOMIC IMPORTANCE – A REVIEW

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Abstract
Ficus exasperata is popularly known as sand paper tree, forest sandpaper fig, white fig or sand paper leaf tree due to its rough surfaces. It is a deciduous and dioecious species of plant in the Mulberry family, Moraceae. Native to tropical Africa and Southern Asia usually growing up to 21 metres tall, but with occasional specimens up to 30 metres. The slightly crooked bole is up to 50 cm in diameter which can be fluted or buttressed. The plant often begins life as an epiphyte, growing on the branch of another tree; as it grows older it sends down aerial roots which after reaching the ground quickly form roots and become much thicker and more vigorous, supplying nutrients to the fig and allowing it to grow faster than the host tree. The aerial roots gradually encircle the host tree, preventing its main trunk from expanding, while at the same time the foliage smothers the foliage of the host. Eventually the host dies, leaving the fig to carry on growing without competition. Ficus exasperata is very widely used in traditional medicine in Africa, being commonly harvested from the wild for local uses. It has several ethnomedicinal uses and insect repellent properties. Its roots, stems and leaves are traditionally employed to manage asthma, dyspnea, venereal diseases, high blood pressure, rheumatoid arthritis, intestinal pains, colic, epilepsy and bleeding wounds. Furthermore, its roots, stems and leaves are also used for the treatment of cough and haemorrhoids while the leaves are being employed as sandpaper.
Key words: Asthma, Ethnomedicinal uses, *Ficus exasperata*, Sand paper tree, Venereal diseases

Introduction

Plants have always been part of human culture and are wide spread in Africa. Herbs have been used in culinary and traditional therapeutic practices for the treatment of different ailments. The nutritional and medicinal properties of the plant may be inter-linked through the phytochemicals present in these plants. It is a common practice that many herbs and their derivatives are employed in the treatment of numerous diseases due to the increasing awareness that several plant species are known to have active constituents that may be of medicinal advantage (Verma and Singh, 2008; Malla *et al*., 2015; Chociej *et al*., 2025).

In Nigeria, *F. exasperata* is called "Kawusa", "Ameme", "Ewe epin" and "Anwerenwa" in Nupe, Edo, Yoruba and Igbo languages respectively. *Ficus exasperata* roots, stems and leaves are traditionally employed to manage asthma, dyspnea and venereal diseases and to treat high blood pressure, rheumatoid arthritis, intestinal pains, colic, epilepsy, bleeding wounds, cough and haemorrhoids (Wonder *et al*., 2010; Ajala *et al*., 2020). Among the plant species that have been ethnobotanically reported to have diverse medicinal uses is the *F. exasperata* (Lawal *et al*., 2012; Roy *et al*., 2025).

Antifungal activities of the leaf extract of *F. exasperata* have been described (Mbakwem-Aniebo *et al*., 2012; Odelade *et al*., 2021). The antifungal activities of young leaves of *F. exasperata* have also been reported by Sonibare *et al*. (2006). The leaf has been reported to be useful for stabilization of vegetable oils, suppression of foaming and supplement as food stock (Odunbaku *et al*., 2008; Al-Farsi and Lee, 2022). In addition, the leaf has been severally used for different medicinal treatments. However, it is important to know their elemental contents as some of these elements may have either toxic effects or essential properties (Pandey *et al*., 2006; Bello *et al*., 2014). These elemental contents of this plant include Crude protein, Crude fat, Crude fibre, Ash, Carborhydrate, Ascorbic acid, Potassium, Calcium, Titanium, Manganese, Iron and Copper (Bello *et al*., 2014).

Taxonomy of *Ficus exasperata* (VAHL)

Domain	Eukaryote
Kingdom	Plantae
Phylum	Tracheophyta
Class	Magnoliopsida

Order	Urticales
Family	Moraceae
Tribe	Ficeae
Genus	*Ficus*
Species	*exasperata*

Botanical Description of *F. exasperata*

Ficus exasperata is a deciduous tree up to 18 m tall. The trunk and bark are pale greenish and lenticellated. The branches are terete with stout white scabrid hairs. It expresses profusely watery latex. The leaves are arranged in simple, alternate stipule in hairs, lateral and caduceus with scar. The petiole is about 1-6 cm long. The lamina is about 5.5-17x3.0-7.5 cm. The leaf base is rounded or acute-cuneate, the margin denticulated. The leaf is trespassed with both secondary and tertiary nerves (3-6 in numbers); the inflorescence is syconia and the flower appears unisexual with its peduncles up to 1.5cm. The shape of the fruit is oblong and is 1.5cm long, yellow or purple when ripped (Hyde *et al*., 2012; Olaoluwa *et al*., 2022).

Fig. 1: *Ficus exasperata* leaves
International Institute of Tropical Agriculture (CC BY-NC)

Fig. 2: *Ficus exasperata* leaves, fruits and trunk
Rujuta Vinod (CC BY-NC), uploaded by Rujuta Vinod

Fig. 3: *Ficus exasperata* fruits
Tanzania Plant Collaboration (CC BY-NC-SA)

Fig. 4: *Ficus exasperata* tree trunk
Tanzania Plant Collaboration (CC BY-NC-SA)

Geographical Distribution of *Ficus exasperata*

Ficus exasperata is widely distributed in West Africa, East Africa, India, Arabia and Sri Lanka; in the Western Ghats-South, Central and Maharashtra Sahyadris (Hyde *et al*., 2012; Olaoluwa *et al*., 2022). It is a tropical Afro-tropical species that naturally occurs in evergreen and secondary forest habitats and can be found from sea level up to 2300 m altitude. As a tropical plant, *Ficus exasperata* requires adequate light, warmth and humidity. For optimal growth and production in the tropical region, *Ficus exasperata* thrives in a climate characterized by warm temperatures and moderate to high rainfall (Adebayo *et al*., 2009; Ahmed *et al*., 2012).

Edible Uses

The fresh leaf is locally added to oil palm fruits in the milling or pounding stage in order to improve the quality and stability of the oil obtained. The inclusion of *Ficus exasperata* leaves in the processing of oil palm resulted in better stabilization of the oil in Nigeria. The antioxidant activities were enhanced in terms of the stabilization and preservation of the oil's quality; saponins present were eliminated and sterols reduced (Umerie *et* al., 2004; Wonder *et al*., 2010).

The overall results of the analysis showed that the unfermented extract of *F. exasperata* had higher antioxidant activity, phenolic contents, minerals, and HPLC-identified contents. However, the fermented *F. exasperata* may offer

distinct health benefits, particularly regarding mineral absorption (Bello *et al*., 2025).

Medicinal Uses

Forest sandpaper fig is commonly employed in African traditional medicine, being used in the treatment of a wide range of conditions. There have been several investigations into its medicinal actions. Aqueous extracts of the leaf have shown gastrointestinal protective effects, diuretic activity, lipid-lowering effects and hypotensive effects. An ethanol extract of the leaf showed *in-vivo* analgesic and anti-inflammatory activity and weak antipyretic activity (Hyde *et al*., 2012; Al-Ramamneh, 2022). Root decoctions are used in the treatment of urinary tract ailments, gonorrhoea, asthma and tuberculosis. The root is chewed to cure cough and a good prescription for worm expulsion. The root bark is used against eye problems. The body is rubbed with root scrapings as a tonic while the wood ash or charcoal is applied on lesions caused by leprosy (Odunbaku *et al*., 2008; Abubakar *et al*., 2022).

Decoctions of the bark are used in the treatment of coughs, haemorrhoids, abnormal enlargement of the spleen and worm expulsion. They are also used as ingredients in the treatment of heart problems. A cold bark extract is drunk in case of dizziness. A maceration of the bark, combined with *Senna occidentalis* and *Setaria megaphylla* is taken to facilitate childbirth or to heal gonorrhea. Sap from the stem bark is used to stop bleeding as a treatment of wounds, sores, abscesses, eye ailments, stomach-ache. In traditional African medicine, the sap from the stem bark of *Ficus exasperata* is applied topically to the affected area for the removal of spines, but some traditional healers consider it corrosive to the skin and dangerous to ingest. The ash of burnt stem bark is sprinkled on wounds. Scrapings from the bark are made into an embrocation with stimulant and tonic properties. The stem bark is locally applied on the body for the treatment of malaria typically as an embrocation and poultice (Odunbaku *et al*., 2008; Olaoluwa *et al*., 2022).

The leaves and young stems are abortifacient, analgesic, antidote, diuretic, emetic, oxytocic and stomachic (PROTA4U Database). A decoction is taken for the treatment of dysentery; diseases of the kidneys and urinary tract; respiratory conditions such as coughs, colds, flu and asthma; also, hypertension. The young leaf is chewed and swallowed in case of gastric ulcers. The fresh leaf is used as an ingredient of preparations for the treatment of heart diseases. The leaves are cooked with bananas and eaten as a treatment for gonorrhea. The cooking water is also drunk for this purpose (Woode *et al*., 2009; Nworu *et al*., 2013). The fruit is eaten as a treatment of coughs and venereal diseases. The dried and powdered fruit is added to porridge for the treatment of sterility in women. Water with the seed powder is drunk as a tonic in case of fever (Ayinde *et al*., 2007; Ajala *et al*., 2020).

Commercial Uses

The rough leaves are widely used as a sand paper for polishing wooden, metal or ivory articles such as kitchen utensils, gourds, sticks, bows, spear shafts, chairs, boards and ivory bracelets. The wood is used for making canoes, house posts, furniture, stools, containers and drums, and is also used as fuel wood and for making charcoal. Young branches are used for making pipe stems (Kumar and Basu *et al*., 1994; Mensah *et al*., 2024). Although, the leaf is sometimes recorded to be poisonous to goats and sheep, it is often fed to ruminants, especially in Ghana (Abbiw, 1990). In Nigeria the fresh leaf is locally added to oil palm fruits in the milling or pounding stage, to improve the quality and stability of the oil obtained. *Ficus exasperata* has been planted as an avenue shade tree, and wild trees are sometimes maintained as a shade tree in banana, coffee or cocoa plantations. A maceration of the leaf is sprayed on crops against insect attack. Cowpea pods treated with *Ficus exasperata* leaf powder before being stored under traditional conditions showed decrease in both the percentage of beans with *Callosobruchus maculatus* and the number of emerged weevils (Makwana *et al*., 1994; Ogunleye *et al*., 2011).

Prospect to Normal Sand paper

Ficus exasperata is widely used as local source of sandpaper and as a medicinal plant. Its role as a source of sandpaper is unlikely to go beyond local use, because of the availability of commercial sandpaper, which is more abrasive and stronger. However, the plant may become more important as a source of medicine, as various extracts have shown anti-ulcer, hypotensive, lipid-lowering, analgesic, anti-inflammatory and antipyretic activity (Singh *et al*., 1996; Hasnat *et al*., 2024).

Conclusion

This review provides a rationale for the ethnomedicinal uses of the leaf of *Ficus exasperata* in the management of a wide range of health conditions. *Ficus exasperata* herb is used in culinary and traditional therapeutic practices for the treatment of a wide range of ailments. It also possesses agro forestry potentials and can possibly be used for large scale processing of sandpaper products. *Ficus exasperata* is hereby strongly recommended as its crude extract is a natural product used for the treatment and management of a wide range of health conditions in Africa as a continent and the world at large.

Glossary of terms

Terete: Cylindrical and Tapering.
Cuneate: Narrowly triangular, wide at the apex and tapering towards the base.
Scabrous: Rough to touch, covered with scales or scurf.

Denticulated: Having a very finely toothed margin.
Syconium: The fleshy hollow receptacle that develops into a multiple fruit, as in the fig.
Antipyretic: Drugs used to prevent or reduce fever.
Decoction: The extraction of water-soluble drug substances by boiling.
Maceration: Softening due to soaking or steeping.
Embrocation: Liquid for rubbing on the body to relieve pain from sprains and strains.
Oxytocic: Drug that induces labour by stimulating contractions of the muscles of the uterus.

Ethics approval and consent to participate
Not Applicable

Consent for publication
Not Applicable

Competing interests
The author declares that there is no conflict of interest regarding this review.

Funding
The author hereby declares that this review was not funded by any organization.

Author(s)' contributions
Conceptualization: Olayinka T. Ogunmefun
Design: Olayinka T. Ogunmefun
Execution: Olayinka T. Ogunmefun
Interpretation: Olayinka T. Ogunmefun
Writing the paper: Olayinka T. Ogunmefun

Acknowledgments
Not applicable

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