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Pharmacological profile of *ficus thonningii*: a review

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Abstract

Ficus thonningii is an African ethno medicine plant used to treat a number of diseases. The nutritional, phytochemical, and pharmacological aspects of *F. thonningii* in relation to its therapeutic purposes are numerous. *Ficus thonningii* contains alkaloids, terpenoids, flavonoids, tannins, active proteins, and active proteins. Continue to identify, isolate, and quantify the active ingredients, as well as their medicinal purposes. Chronic toxicity, toxicology, antineoplastic effects, acute toxicity, hypoglycemic effects, antidiarrheal effects, analgesic effects, anti-inflammatory effects, antioxidants, antifungal activity, antimicrobial effects, antiprotozoal properties etc.

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Introduction

Ficus thonningii is also often used by nursing moms as a galactogogue to enhance lactation [1]. The safety and effectiveness of *Ficus Thonningii* cannot be confidently guaranteed by the history and scope of its traditional usage, despite its extensive use in ethnomedicinal systems. *F. thonningii* is a multistemmed, evergreen or short deciduous tree with a thick, rounded to spreading crown that is mostly found in tropical and subtropical Africa's highland woodlands [2]. The tree grows well in bright, deep, well-drained soils and thrives at elevations of 1 000–2 500 m. It's worth noting that the majority of the trees in the *F. thonningii* complex have the same name in African languages. 'Mutsamvi' is the Shona name for *F. rokko*, *F. natalensis*, *F. burkei*, and *F. rhodesiaca* [3-4]. While 'Mulemba' is the local name for *F. burkei*, *F. psiliopoga*, and *F. petersii* in Angola. More significantly, these closely related variations seem to have the same traditional therapeutic applications and value to the local people. The leaves of *F. thonningii* are high in protein [5]. Different kinds of secondary metabolites are found in *F. thonningii*. The plant produces these non-nutritive substances, known as phytochemicals, to defend itself from biotic and abiotic stressors. They are largely responsible for many plants' defensive and disease-preventive qualities. Flavonoids, tannins, alkaloids, terpenoids, and essential oils are the principal groups of phytochemicals identified from *F. Thonningii*, according to literature [6-7].

Local Names

Afrikaans (gewone wurgvy); Arabic (jammeiz al abiad); English (strangler fig, common wild fig, bark-cloth fig); French (India-

laurel fig); Fula (bikeshi); Hausa (chediya); Shona (gerina); Spanish (Laurel, álamo jagüey, Arbol de Washington); Swahili (mtsachamwa, mrumbapor); Tigrigna (shibaka); Yoruba (odan); Zulu (umBombe).

Biology

Small wasps that grow in some of the blooms and live symbiotically within the syconium pollinate the unisexual flowers. Bats are responsible for seed dispersion. Flowering and fruiting may be seen in southern Africa during the most of the year, with a peak in October.

Phytochemical composition

Most investigations used qualitative phytochemical screening in *F. thonningii*. Qualitative approaches can only confirm the existence or absence of a class of compounds. Few studies have focused on isolating and quantifying specific compounds found in *F. thonningii*. Phytochemicals found in *F. thonningii* include alkaloids, terpenoids, flavonoids, tannins, and essential oils.

Pharmacological activity

The pharmacological activities of *Ficus thonningii* has shown in figure 1 and briefly discussed following are:-

Chronic toxicity

In adult Wistar rats, oral treatment of aqueous extracts (250 and 500 mg/kg body weight) for 15 days resulted in no mortality, no haematological derangements, and no clinical symptoms of toxicity within 72 hours [8].

Toxicology

Given their extensive usage and the prevalent belief that green medicine is always harmless, empirical confirmation of possible acute and chronic harmful consequences of plant medicines is critical.

Antineoplastic effects

Ehrlich's ascite carcinoma, S180 sarcoma, Hep a hepatocarcinoma, and Lewis lung carcinoma were all demonstrated to be inhibited by aqueous extracts of *Ficus carica*. The possible antineoplastic properties of *F. thonningii* extracts must therefore be investigated [9].

Acute toxicity

The short-term harmful effects of aqueous *F. thonningii* leaf extracts in adult Wistar rats were investigated in an acute toxicity investigation. The LD₅₀ of extracts given orally was found to be more than 3000 mg/kg of body weight. Animals died 100 percent after receiving 600 mg/kg body weight of the same extracts intraperitoneally, while the LD₅₀ intraperitoneally was found to be 584 mg/kg. The median fatal dosage of ethyl acetate leaf extracts of *Ficus thonningii* taken orally was found to be over 5000 mg/kg body weight in adult Wistar rats in another acute toxicity test [10].

Hypoglycemic effects

The ethnomedicinal use of plant extracts in the treatment of diabetes mellitus is supported by these hypoglycemic properties. The presence of phytol in *F. thonningii* may have a role in its hypoglycemic properties. Phytanic acid, a product of phytol metabolism, has been shown to have hypoglycaemic and hypolipidaemic properties [11].

Antidiarrheal effects

Anti-diarrhea plants also work by lowering intestinal motility, increasing water absorption, and lowering electrolyte output [12].

Analgesic effects

F. thonningii methanolic extracts (500 mg/kg) given intraperitoneally demonstrated a percentage inhibition (79.7%) equivalent to aspirin (80%), indicating that *F. thonningii* possesses analgesic properties that might be effective in the treatment of peripherally generated pain [13].

Anti-inflammatory effects

Phytol, an aliphatic diterpene discovered in *F. thonningii*, has anti-inflammatory properties and has been proposed as a therapy for rheumatoid arthritis and probably other chronic inflammatory disorders including asthma [14].

Antioxidant

The erythrocyte membrane has been found to be protected by *F. thonningii* against acetaminophen-induced membrane peroxidation. Its antihaemolytic and haematinic properties are thought to be owing to its antagonistic action against glutathione depletion, which prevents the production of free radicals that cause oxidative stress [6]. Many therapeutic plants, including the pigeon pea (*Trollius ledebouri* Reichb), linseed oil (*Linum usitatissimum*), and rooibos tea, contain C

glucosylflavonoids (orientin, vitexin, and isovitexin) (*Aspalathus linearis*) [15].

Antifungal activity

The existence of antifungal substances is suggested by the historic usage of *F. thonningii* in the treatment of athlete's foot rot. *Aspergillus niger*, *Aspergillus flavus*, *Botryodiploidia theobromae*, *Fusarium oxysporum*, *Fusarium solani*, *Penicillium chrysogenum*, *Penicillium oxalicum*, and *Rhizopus stolonifer* were all resistant to leaf extracts of *F. thonningii* (25 and 50 mg/ ml). Mycelia growth was also observed to be significantly slowed by the extracts.

Antimicrobial effects

Most antimicrobial bioactive chemicals are aromatic or saturated organic molecules, making ethanol or methanol extraction simple. Some compounds, however, partition solely in certain solvents, such as xanthoxylines, totarol, quassinooids, lactones, and phenones, which partition only in methanol, whereas polyacetylenes, sterols, and propolis partition only in ethanol [17].

Antiprotozoal properties

They found that after three days after inoculation, mice had a survival rate of 0%, compared to 100% for the controls, melarsoprol and pentamidine, both of which marketed medications are used to treat human African trypanosomiasis. When compared to the control metronidazole, a commercial antibiotic, *F. thonningii* was shown to have strong amoebic activity against *Entamoeba histolytica* at a concentration of 100 g/ ml.

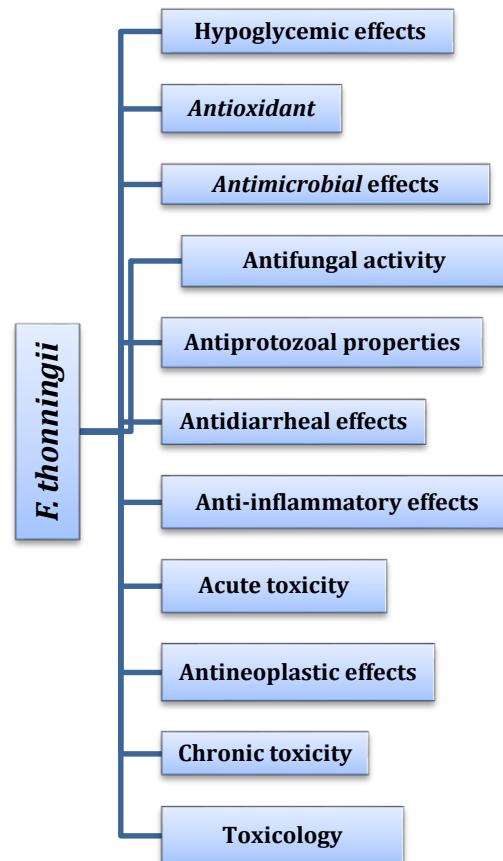


Figure 1: Pharmacological activities of *Ficus thonningii*

Disclosure Statement

There are no conflicts of interest.

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