

News & Comments

The Use of *Parkia biglobosa* Trunk Bark in the Treatment of Inflammatory Diseases

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Fever, pain, tissue damage, edema, cell infiltration (lymphocytes, macrophages, and monocytes), and the development of granulomas are all symptoms of inflammation. Several inflammatory mediators, such as cytokines (TNF, IL1, IL6), prostaglandins, leukotrienes, and reactive oxygen species, are released throughout the inflammatory process (ROS). Chronic inflammation is a feature of chronic disorders including cancer, diabetes, hypertension, obesity, etc. and is triggered by the persistent overproduction of these mediators. Modern medicine uses two classes of medications to prevent the acute phase of inflammation from turning into a chronic phase: steroidal anti-inflammatory drugs (AIS) and non-steroidal anti-inflammatory drugs (NSAIDs). These medications cause unwanted side effects that are the focus of therapeutic intervention. Several disorders are treated with *Parkia biglobosa*. It is said to contain antimicrobial, anti-diabetic, and anti-hyperlipidemic effects as well as vascular characteristics.

To determine the acute toxicity, anti-edematous, analgesic, and antioxidant effects of bark extracts from the trunk of *Parkia biglobosa*, this study will perform a phytochemical screening (Jacq.)

In Gonse, around 15 km from Ouagadougou, the trunk bark of *Parkia biglobosa* was collected in July 2018. Dr GANABA Souleymane, Director of the Environment and Forests' Ecosystem Management and Monitoring program, identified the plant. Analytical-grade materials were used for all solvents and reagents. *Parkia biglobosa* powder weighing 100 g was dissolved in 1000 mL of distilled water for a sample test. The OECD line 423 "dose adjustment" approach was used to assess acute toxicity. The Marius et al. method was used to conduct the anti-edematous test with croton oil. Based on statistical processing, the in vivo test data were examined using the Graph Prism version of the software.

After the extracts were administered in doses of 2000 mg kg⁻¹ b.wt., there were no signs of toxicity, and no deaths were reported. At dosages of 200, 400, and 600 mg kg⁻¹, the anti-edema efficacy of the aqueous and hydroethanolic extracts was assessed. The hydroethanolic, aqueous, and indomethacin extracts all reduced local inflammation. The effects of the aqueous and hydroethanolic extracts' analgesic action are exhibited. The ability of the hydroethanolic extract to scavenge ABTS and DPPH radicals was the highest. The plant kingdom is a vast repository of biologically active substances with a wide range of chemical structures and anti-disease (phytochemical) activities. The majority of the polyphenols found in the bark of *P. biglobosa* trunks are tannins and flavonoids. These many techniques (DPPH, ABTS, FRAP LPO) for evaluating the anti-free radical activity of plants are somewhat



complementary, but none of them can be used as a reference³⁵. In comparison to the aqueous extract, the hydroethanolic extract demonstrated a higher antioxidant capacity.

The high phenolic component content of our extracts may help to explain this. The ability of phenolic compounds to act as antioxidants is well established. Unsaturated lipids in the cell membrane are oxidized by ROS, which produces lipid peroxides, which are cytotoxic and contribute to inflammation. In conclusion, tannins, flavonoids, saponosides, sterols, and triterpenes are present in the aqueous and hydroethanolic extracts of the trunk bark of *Parkia biglobosa*.

JOURNAL REFERENCE

Ouedraogo, N., C. Atchade, T.K. Traore, B. Ouedraogo and B.A.G. Laurent, 2021. Anti-inflammatory activity of extracts from *Parkia biglobosa* (Jacq.) R.Br. Ex G.Don. (Fabaceae-Mimosoideae) trunk bark. *J. Pharmacol. Toxicol.*, 16: 1-8.

KEYWORDS

Parkia biglobosa, anti-inflammatory, analgesic, antioxidant, lipoxygenase, cyclooxygenase, traditional medicine

