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[J Ethnopharmacol.](#) 2024 Jun 28;328:118112. doi: 10.1016/j.jep.2024.118112. Epub 2024 Mar 29.

Acute and subacute toxicological evaluation of the ethanol leaf extract of *Morus mesozygia* stapf. (Moraceae) in rodents

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PMID: 38554852 DOI: [10.1016/j.jep.2024.118112](#)

Abstract

Ethnopharmacological relevance: Traditionally, the *Morus mesozygia* tree leaf has been used to manage maladies such as peptic ulcer, hyperglycemia, dermatitis, rheumatism, stomach-ache, arthritis, cough, malignancies, and malaria in parts of Africa.

Aim of the study: The study aimed to evaluate the potential of ethanol leaf extract of *Morus mesozygia* (EEMm) to induce toxicity by employing both acute and sub-acute oral toxicity experimental models.

Material and methods: The extract's cytotoxicity was studied using brine shrimps (*Artemia salina*) lethality assay (BSLA), while in the acute toxicity test, male and female mice were administered a

single oral dose of EEMm (2000 mg/kg). Male and female Wistar rats received repeated doses of 100 or 500 mg/kg EEMm orally for 28 days in the sub-acute toxicity experiment. The phytochemical analysis of EEMm was done using the HPLC.

Results: The BSLA revealed a moderate cytotoxic potential of the extract, with an LC_{50} of $567.13 \pm 0.27 \mu\text{g/mL}$. All the animals survived the acute toxicity test, with no significant changes in the relative organ weights, suggesting that LD_{50} is greater than 2000 mg/kg. The animal weights did not vary significantly in the sub-acute toxicity test neither were the alterations in biochemical and hematological tests pronounced, although the histoarchitectures of the kidney, liver and spleen indicated slight anomalies in the evaluated animals. The HPLC analysis revealed the presence of quercetin, ferulic acid, rutin, caffeic acid, morin and gallic acid.

Conclusions: Ethanol leaf extract of *Morus mesozygia* demonstrated a safe toxicity profile in rodents, supporting its broad folkloric use in African ethnomedicine.

Keywords: Brine shrimp; LD(50); *Morus mesozygia* leaf; Safety; Toxicity profile.

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