

A Short Note on Methanol Leaf Extract of *Detarium microcarpum* (Fabaceae)

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Abstract

Malaria is an endemic infectious illness that causes morbidity and mortality in tropical and sub-tropical places around the world. *Detarium microcarpum* (Fabaceae) has long been used to treat malaria, diabetes, hypertension, pneumonia, and other ailments. The goal of this study is to see how effective antiplasmodial drugs are and how safe they are. *Detarium microcarpum* leaf extract in methanol Oral Median Lethal Dosage (LD50) estimate and phytochemical screening. The extraction was completed. The antiplasmodial activity was tested in mice infected with chloroquine-resistant plasmodium. Curative, suppressive, and prophylactic experimental models for *Plasmodium berghei-berghei* Rats were fed rat food. Biochemical assay and hematological analysis were performed after administering the extract of *Detarium microcarpum* daily for 28 days. Analysis of Variance (ANOVA) was used to analyze the data, followed by Dunnett's post hoc test. Alkaloids, flavonoids, saponins, tannins, triterpenes, and glycosides were discovered by phytochemical analysis. The extract's oral LD50 was determined to be >5000 mg/kg. The extract had substantial curative, suppressive, and preventive effects at all doses tested ($p=0.001$). In comparison to the negative control group, the extract dramatically increased the survival period of the treated mice by 19 days. At the maximum dose, the extract caused a significant change in AST ($p=0.01$) and Alkaline Phosphatase (ALP) ($p=0.001$). However, as compared to the control, no significant differences in renal function tests or hematological analyses were seen in any of the treatment groups. The findings of this study suggest that *Detarium microcarpum* methanol leaf extract has curative, suppressive, and preventive antiplasmodial activity, and that short-term usage at the levels examined was rather safe.

Keywords: Endemic • Hematological • Substantial

Introduction

Malaria is a life-threatening parasite disease spread by female anopheles' mosquitoes infected with the Plasmodium species. Malaria is caused by *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium malariae*, and *Plasmodiumis* known less in humans. *Plasmodium falciparum* is the most lethal and the most common cause of malaria in humans. Malaria is an endemic infectious illness that causes morbidity and mortality in tropical and sub-tropical regions of the world.

Children under the age of five, pregnant women, sicklers, Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) patients, and non-immune immigrants are all at an increased risk of acquiring malaria and having serious sequelae. The use of medicinal plant extracts to treat malaria has a long and effective history. Quinine has been obtained from *Cinchona* (Rubiaceae) and artemisinin has been isolated from Qinghaosu (*Asteraceae*). done in order to evaluate and verify their short and long-term safety. *Detarium microcarpum* is a tree legume that grows naturally in the drier regions of West and Central Africa and belongs to the Fabaceae family. Taura (Hausa), ofo (Igbo), ogbogbo (Yoruba), gatapo (Kanuri), gkungorochi (Nupe), aikperlarimi (Etsako), and gwogwori are some of the native names (Gwari). *Detarium microcarpum* has been shown to have antimicrobial action, inhibitory activity against the hepatitis C virus, anti-inflammatory and analgesic properties, and antibacterial activity in previous scientific studies. *Detarium microcarpum* is used by the Lala tribe of Adamawa to treat malaria and jaundice, and the Gwaris of the Federal Capital Territory (FCT) to treat malaria and diarrhea, but its efficacy has not been scientifically proven. The in vivo antimalarial activity is assessed using the rat malaria parasite *Plasmodium berghei*, which is chloroquine-sensitive. The goal of this study is to assess the antiplasmodial activity and safety profile of *Detarium microcarpum* methanol leaf extract.

Discussion

The findings of this study revealed that the methanol leaf extract of *Detarium microcarpum* has significant antiplasmodial activity, which could be due to the presence of some bioactive substances in the extract. These findings lend scientific support to the traditional use of the plant for malaria treatment. After short-term therapy in rats, serum liver and kidney function measures, as well as hematological indices, suggest that the extract is relatively safe at the levels evaluated. At the greatest dose, however, there were signs of damage in the liver.