

Abstract 33 – Paper ID: 047**Antimalarial Activity, Toxicity and Phytochemical Profiling through GCMS of *Toona ciliata* M.J. Roem. (Meliaceae)**

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Abstract

Towards accomplishing the roll back malaria initiative, phytochemical screening of traditionally used medicinal plants for novel antimalarials are highly required. The present research evaluates the antimalarial activity of hydro methanolic extract of *Toona ciliata* (TcHME). The in vitro antiplasmodial activity was assessed against *Plasmodium falciparum* (Pf) 3D7 and PfCam3 I^{R539T} using [³H]-hypoxanthine. Further, cell cytotoxicity, acute toxicity, in vivo antimalarial activity, and phytochemical screening were carried out. The antimalarial activity in mice was evaluated using four day Peter's suppressive test against *Plasmodium berghei* ANKA. To identify phytochemicals, we performed gas chromatography mass spectrophotometry (GCMS) fingerprinting of TcHME.

The study revealed that TcMHE exhibited good antiplasmodial activity in dose-dependent manner with parasite's growth inhibition having IC₅₀ values of 22.07 ± 1.99 µg/ml and 42.68 ± 1.06 µg/ml against Pf3D7 and PfCam3.I^{R539T} strains, respectively. TcMLE exhibited low cytotoxicity (<20%) against HeLa and HEK293T cells at the highest tested concentration of 200 µg/ml. Dosage greater than 5000 mg/kg of the extract represents the acute lethal dose (LD₅₀) in mice. Three separate doses, i.e., 1200, 800 and 400 mg/kg body weight were tolerated, showing decrease in parasite's growth rate of 70.74 ± 3.53%, 51.13 ± 2.34% and 39.39 ± 3.29%, respectively, as compared to standard drug Chloroquine. The presence of various bioactive metabolites such as alkaloids, flavonoids, glycosides, saponin, phenols, terpenoids, tannins, steroids and coumarins were confirmed through GCMS chemical fingerprinting. Our findings demonstrate that TcMHE possesses good antimalarial property in their crude form. Hence, *T. ciliata* is recommended as a new candidate for antimalarial drug development. Foresight, it is suggested that efforts on isolation of lead compounds from TcMHE ameliorates the eradication of malaria.

Keywords: *Toona ciliata*, Antimalaria, *Plasmodium*, Chloroquine, Toxicity, Dose