UNIVERSITI TEKNOLOGI MARA

ANTIPLASMODIAL ACTIVITIES OF *GONIOTHALAMUS LANCEOLATUS* AGAINST *PLASMODIUM FALCIPARUM* AND *PLASMODIUM BERGHEI*-INFECTED MICE.

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ABSTRACT

Malaria remains a global health problem with the emergence and spread of drug-resistance parasites thwarts the successful treatment of the infection. To address this challenge, increased efforts are directed in discovering new agents against malaria. The current study was designed to investigate the antiplasmodial activities of *Goniothalamus lanceolatus* Miq. crude extracts and major compounds using *Plasmodium falciparum* in *in vitro* culture and *Plasmodium berghei*-infected mice. The *in vitro* antiplasmodial activity was determined by parasite lactatate dehydrogenase (pLDH) assay on chloroquine-sensitive *P. falciparum* (3D7) and chloroquine-resistant *P. falciparum* (K1) strains. The cytotoxicity effect was evaluated using a tetrazolium salt MTT (3-[4.5dimethylthiazol-2-yl]-2.5-diphenyltetrazolium bromide) on normal liver (WRL-68) cell line. The results revealed that root methanol extract and Parvistone D of *G. lanceolatus* possessed potent and promising antiplasmodial activity against both *P. falciparum* (3D7) and (K1) strains, respectively without causing cytotoxicity effect against WRL-68 cell line. Therefore, root methanol extract and Parvistone D were selected to be further investigated for its acute oral toxicity profile prior to the *in vivo* antiplasmodial activity using 4-day suppressive test. A total of 105 Institute of Cancer Research (ICR) mice were used in this study. The mice treated with extract and compound showed no sign of toxicity and mortality up to a single dose of 2000 mg/kg and 500 mg/kg, respectively. In addition, the extract and compound prolonged the mean survival time and demonstrated significant ($p<0.05$) chemosuppression activity at the dose of 300 mg/kg and 30 mg/kg, respectively. Furthermore, oral administration of the extract and compound also showed ameliorative effects with references to the haematological, biochemical and histopathological changes in the infected mice. In conclusion, the root methanol extract and Parvistone D of *G. lanceolatus*, are relatively safe with active antiplasmodial activities which could further develop into new antimalarial lead structure.

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