

ABSTRACT

IN VITRO ANTIMALARIAL ACTIVITY USING MORPHOLOGICAL
ASSAYS FROM EXTRACTS AND FRACTIONS OF
Cratoxylum sumatranum STEM BARK AND LEAVES AGAINST
Plasmodium falciparum
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Malaria is a disease caused by plasmodium parasites. WHO report 445,000 people in the world died because of malaria infection in 2016. The resistance of parasite with antimalarial drug was worsen this health problem. The use of resistance of Artemisinine-based Combination (ACT) therapy was lead to the failure of malaria treatment. Therefore, the alternative of antimalarial drug was need to be developed. *Cratoxylum* spesies was one of the plants that showed potential antimalarial activity. The purpose of this study was to determine the antimalarial activity of *Cratoxylum sumatranum* stem bark and leaves. Stem bark and leaves were extracted gradually solvents using hexane, dichloromethane and methanol. *C. sumatranum* extracts were further tested in five serial tenfold dilution (final concentration range:100-0.01 µg/ml) in 96-well microtitre plates. *P. falciparum* (strain 3D7) briefly culture with 2% erythrocyte volume fraction and ±1% initial parasitemia was added to this plates. The plates were incubated at 37 °C during 48 hours. Giemsa-stained thin blood smears was made for evaluation of morphological assays by microscopic. 50% Inhibitory Concentration (IC₅₀) values of extracts detemined by probit analysis SPSS softwere. The antimalarial activity test results revealed that all extracts had inhibitory activity against parasites and dichloromethane stem bark extract showed the highest inhibition. The dichloromethane stem bark extract was further fractionated by open column chromatography using hexane, dichloromethane and methanol (compose eluen) and 12 fractions was obtained. Antimalarial activity of this 12 fraction revealed that fraction-6 have the highest inhibitory activity by IC₅₀ of 0.014 µg/ml. The results of TLC indicated that fraction-6 contains flavonoids, polyphenols and anthraquinone group compound. Fraction-6 was exhibited antimalarial activity and potential to be developed as antimalarial drug substances. The active compound from fraction-6 need to be further isolated.

Keyword: *Plasmodium falciparum*, *in vitro* antimalarial activity, *Cratoxylum sumatranum*, extraction, fractionation