HEME POLYMERIZATION INHIBITION ASSAY AND PHYTOCHEMICAL SCREENING OF ETHANOL EXTRACT AND FRACTION OF n-HEXANE:ETHYL ACETATE (2:1) OF *TEMU MANGGA (Curcuma mangga* Val.)

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ABSTRACT

Resistance of malaria parasites towards existing drugs is one of the causes malaria is still a health problem in the world, include Indonesia, so the discovery of new antimalarial drugs is required. Nature resources of Indonesia give a chance to evolve novel medicines from nature materials, one of them is *temu mangga* (*Curcuma mangga* Val.). This study aimed to find out the activities of antimalarial through the mechanism of hem polymerization inhibition from ethanol extract and n-hexane:ethyl acetate (2:1) fraction of *temu mangga* and to identify compound class that contain within it. The extract of *temu manga* was obtained by soxhlet extraction method using 100 % ethanol solvent followed by fractionation using Vacuum Liquid Chromatography with solvent sequence n-hexane, n-hexane: ethyl acetate (2:1), ethyl acetate and ethanol. This study only used ethanol extract and n-hexane:ethyl acetate (2:1) fraction to be evaluated for the activities of hem polymerization inhibition with contain dose 5 mg/mL compared to positive control (chloroquine) and negative control (DMSO 10%). This assay performed as many as 3 replications using 5 different concentrations. Activities of hem polymerization inhibition showed by IC_{50} values which were obtained from analysis of relationship between concentration sample and the percentage of inhibition using the PROBIT on statistical software. The result showed that ethanol extract and n-hexane:ethyl acetate (2:1) fraction has a mean IC_{50} values of 1.67 mg/mL ± 0.83 and 0.73 mg/mL ± 0.17, respectively. Both have lower IC_{50} values than chloroquine which has IC_{50} value of 12 mg/mL, so it can be said that both have inhibitory activity of hem polimeryzation. The result of phytochemical screening proved that ethanol extract and n-hexane:ethyl acetate (2:1) fraction contains terpenoid and phenolic compounds. The dominant compounds contained in ethanol extract and n-hexane:ethyl acetate (2:1) fraction based on the identification results of GC-MS was a terpenoid compound, (E)-labda-8(17),12-dien-15,16-dial, which has retention time of ± 43.49 minutes and molecular weight of 302 m/z.

Key Word : Malaria, *Curcuma mangga* Val., hem polymerization, GC-MS