Thesis Title Mutagenic and Antimutagenic Study of *Curcuma Aromatica*

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ABSTRACT

Crude organic and aqueous crude extracts from *Curcuma aromatica* were evaluated for their mutagenic and antimutagenic potential using Rec assay and Ames' test. All crude extracts did not show both mutagenic and antimutagenic potential in Rec assay. All tested organic extracts were not mutagenic toward *S. typhimurium* TA98 and TA100 at the highest dose of 10 and 50 ug/plate in the absence and presence of metabolic activation, respectively. For aqueous extract, it showed no such mutagenic activity at the highest dose of 2 mg/plate in the absence and presence of metabolic activation as well. All crude extracts failed to exhibit antimutagenic activity against NDPA-induced mutation in the absence of metabolic activation. On the contrary, chloroform extract showed a weak antimutagenic potential toward 4NQO-induced mutation in TA98 and TA100, methanol extract exhibited a weak antimutagenic activity against AF_2- and 4NQO-induced mutation in both TA98 and TA100 and a strong

antimutagenic activity against 4NQO-induced mutation. Slightly weak inhibition of mutation was observed in crude ethanol extract in all mutagens induction. Aqueous crude extract eventually exhibited weak antimutagenicity and seemed to possess more antimutagenicity against both AF_2- and 4NQO-induced mutation toward TA100 than TA98. When metabolic activation was included, crude organic and aqueous extracts failed to establish an antimutagenicity. Slightly weak inhibition of mutation was observed in crude ethanol extract in all mutagens induction. When mutation was induced by AF_2 and 4NQO, the pre-treatment of all crude extracts appeared to be more effective toward TA100 than TA98. The study also revealed more antimutagenic potential of pre-treatment when compared to post treatment of crude extracts applied against the existed mutation. However, ethanol extract failed to be used as treatment after 4NQO-induced mutation.