ABSTRACT

SRI WINDARWATI. F351074011. Utilization of Active Fraction of Jatropha curcas Herb Extracts as Antimicrobial and Antioxidant Agents in Cosmetic. Supervised by DWI SETYANINGSIH and FRANSISKA R. ZAKARIA.

Crude extract of Jatropha curcas herbs exhibit antimicrobial and antioxidant activity that may be used in cosmetic product. Extract fractionation was done by solvent partition with hexane and ethyl acetate successively to produce low and medium polarity fractions. The objective of this research was to obtain active fraction from leaves, seedcakes, and stem barks of Jatropha curcas as antimicrobial and antioxidant agents in cosmetics product. Furthermore, this research examined the toxicity of the selected fractions and its cosmetics product i.e. hand and body cream. Crude extract and/or its fractions were analyzed for antioxidant activity by DPPH scavenging test, antimicrobial activity, total phenol, phorbol ester, skin irritation testing by Draize test, and chemical composition by GC-MS. Results of this study showed that methanol fraction of leaf extract was the most potential antioxidants with DPPH scavenging activity of 89.42%, while ethyl acetate fraction from the same extract was potentially used as an antimicrobial agent with zone of inhibition of 12.5 mm. Total phenol content for methanol and ethyl acetate fractions was 32.76 and 88.53 mg tannic acid/g sample, respectively. Primary irritation testing using New Zealand white rabbits revealed that application of methanol fraction (0.064%-1%) did not induce erythema or edema formation, meanwhile the cream containing this fraction induced mild irritation. Application of ethyl acetate fraction of 1.25% did not cause skin irritation, meanwhile the cream containing this fraction induced mild irritation. Crude extract and ethyl acetate fractions of leaf extract were classified as slight irritant; meanwhile methanol fraction was considered as non irritant. Allergenic reaction using human IgE showed that crude extract of leaves, seedcakes and stem barks may react with human IgE that may induce allergy reaction.

Key words: antimicrobial, antioxidant, skin irritation, Jatropha curcas, extract.