ABSTRACT

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ISOLATION AND IDENTIFICATION OF ANTIBACTERIAL COMPOUND IN TAMARIND PULP (Tamarindus indica L.)
(xiii + 119 pages : 11 tables; 16 figures; 9 appendices)

Tamarind has bioactive compounds that can exhibit antimicrobial activities but further information about its specific compounds and the antibacterial activity changes between crude extract and isolate had not been studied yet. Crude extract of tamarind pulp in this experiment was tested for phytochemical compounds and antibacterial activity. In order to isolate and identify antibacterial compounds, column chromatography, thin layer chromatography, and gas chromatography were applied. Mobile phase for column chromatography was ethyl acetate:ethanol in 100:0, 90:10, 80:20, 70:30, 60:40, 50:50, 40:60, 30:70, 20:80, 10:90, and 0:100 ratio. The maximum wavelengths for all fractions were scanned and all concentrated fractions used for antibacterial activity test. The result showed the best inhibition zone came from FD-2 fraction (2nd fraction of ethyl acetate:ethanol = 70:30 ratio). FD-2 fraction had MIC 1.18% and MBC 4.70% for Pseudomonas sp., MIC 0.54% and MBC 2.16% for Listeria monocytogenes. Its activity was smaller than the crude extract that had MIC 0.65% and MBC 2.61% for Pseudomonas sp., MIC 0.46% and MBC 1.85% for Listeria monocytogenes. For the next step, FD-2 fraction was separated using thin layer chromatography. The best single spot was given by ethyl acetate:ethanol = 0:1 with the maximum wavelength 368 nm; 458.5 nm; and 550 nm. Fraction was identified with GC-MS resulted antibacterial compounds such as hexadecanoic acid methyl ester, 11-octadecenoic acid methyl ester, 9-octadecenoic acid, eicosanoic acid, stigmasterol, and gamma-sitosterol.

Keywords : Antibacterial, column chromatography, isolation, tamarind pulp, Tamarindus indica L.