ABSTRACT

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UTILIZATION OF YELLOW MELINJO PEEL EXTRACT (Gnetum gnemon L.) AS NATURAL PRESERVATIVE AND COLOURANT IN TOFU

Melinjo peel is usually used as a waste. Many researches explain that melinjo peel has an antimicrobial activity. In this research, melinjo peel was extracted by combination of two solvents, which were ethanol and ethyl acetate, then two different temperatures, which were 25°C and 40°C, and then six different times, which were 1, 2, 3, 4, 5, and 6 hours. Each of the extract were tested against six microorganisms, Escherichia coli, Staphylococcus aureus, Bacillus cereus, Listeria monocytogenes, Pseudomonas sp., and Streptococcus sp. by the well diffusion method. The extracts were diluted to different concentrations, which were 5%, 10%, 15%, and 20%. The results showed that the extract which extracted by ethanol with 40°C in 6 hours gave the best inhibition. The extract could inhibit E. coli (4.90 – 10.70 mm), S. aureus (9.30 – 14.90 mm), B. cereus (8.10 – 13.10 mm), Listeria monocytogenes (8.20 – 13.20 mm), Pseudomonas sp. (6.30 – 13.20 mm), and Streptococcus sp. (4.00 – 8.10 mm). Further objectives of this research were to determine the MIC and MBC for each bacteria. The result showed that Minimum Inhibition Concentration (MIC) will used as a natural preservative and colourant in tofu were 4MIC from E. coli which was 3.43%. Organoleptic test showed that panelist can accept the addition of yellow melinjo peel extract until 4MIC in tofu. Scoring test during five days storage showed that tofu’s colour, texture, and aroma decreased. Tofu with the addition 4MIC still in the acceptable microbiological range based on Indonesian Tofu Standard (Indonesian Industry Ministry) until 5 days. On the challenge test, the addition of 4MIC yellow melinjo peel extract can inhibit the bacterial growth.

Keyword : yellow melinjo peel, antimicrobial, extract, tofu