ABSTRACT

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ANTIMICROBIAL ACTIVITY OF SPADELEAF (CENTELLA ASIATICA (L.) URB.) EXTRACTS TOWARDS SEVERAL FOOD MICROBES AND THE EXTRACT APPLICATION TO A FOOD MODEL SYSTEM

(xiii + 78 pages: 7 tables, 5 figures, and 11 appendices)

The spadeleaf (Centella asiatica (L.) Urb.) known as “pegagan” in Indonesia has been used as a medical herb for traditional treatment and shows the ability to become a natural antimicrobial agent. This research was aimed to study the ability of C. asiatica leaf extract as an antimicrobial agent and its application to a potato-based food model system to reduce microbial contamination. C. asiatica leaves was extracted using maceration method with three different organic solvents with certain polarity-solubility profile, i.e ethanol (polar), ethyl acetate (semi-polar), and hexane (non-polar). The C. asiatica leaf extract was further subjected to a qualitative phytochemical analysis, toxicity, and antimicrobial activity test by using well-diffusion method against P. aeruginosa, B. cereus, L. monocytogenes, and A. flavus. The highest inhibition zone was formed by ethyl acetate extract. P. aeruginosa was the most resistant microorganism with the value of MIC 2.449% and B. cereus was the most sensitive bacteria with MIC value 1.145%. C. asiatica leaf extracts was having the ability to become a natural antimicrobial agent and food preservative since it could reduce the amount of challenge bacteria. The antimicrobial activity was stable and effective in reducing the amount of P. aeruginosa at different storage condition. Combination of extract concentration and storage condition, storage periods and storage condition, and extract concentration and storage periods did not give significant effect on the extract in reducing the amount of P. aeruginosa in the food system. The effectiveness of the extract increases as the C. asiatica leaf extract concentration increases.

Keywords: Pegagan, spadeleaf, Centella asiatica, extraction, antimicrobial activity, well diffusion

References: 39 (1986-2012)