

Intisari

PENGARUH PENAMBAHAN BUBUK KAYU MANIS TERHADAP KARAKTERISTIK *FLAKES* YANG DIFORTIFIKASI NANOKAPSUL KAROTENOID DARI *Arthrospira platensis*

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan bubuk kayu manis terhadap karakteristik *flakes* yang difortifikasi nanokapsul karotenoid dari *A. platensis*. Penelitian ini terdiri dari dua tahap. Tahap pertama dilakukan uji hedonik untuk mengetahui perlakuan yang paling diterima, dengan penambahan bubuk *A. platensis* (2,5%) dan fortifikasi nanokapsul karotenoid *A. platensis* (0,24%) dengan penambahan bubuk kayu manis (0%, 0,625%, 1,25%, 1,875%, 2,5%) dengan hasil *flakes* yang difortifikasi nanokapsul karotenoid *A. platensis* (0,24%) dan penambahan bubuk kayu manis sebesar 0,625 % merupakan perlakuan yang paling diterima konsumen jika dibandingkan dengan perlakuan penambahan bubuk *A. platensis* (2,5%) sehingga dilakukan perubahan konsentrasi penambahan bubuk kayu manis untuk tahap kedua. Tahap kedua dilakukan penambahan bubuk *A. platensis* (2,5%) dan fortifikasi nanokapsul karotenoid *A. platensis* (0,24%) dengan penambahan bubuk kayu manis (0%, 0,156%, 0,312%, 0,625%, 1,25%) yang digunakan untuk uji analisis deskriptif kuantitatif (QDA), uji kadar air, uji kadar karotenoid total, dan uji aktivitas antioksidan. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) satu faktor (3 kali ulangan). Data dianalisis menggunakan analisis non-parametrik (Kruskal-Wallis) dan diuji lanjut Mann-Whitney dengan tingkat kepercayaan 95%. Hasil penelitian menunjukkan bahwa fortifikasi nanokapsul karotenoid *A. platensis* (0,24%) dengan penambahan bubuk kayu manis memberikan pengaruh pada peningkatan penerimaan konsumen, kadar karotenoid total, dan aktivitas antioksidan, namun menurunkan kadar air jika dibandingkan dengan perlakuan penambahan bubuk *A. platensis* sebesar 2,5%. Hasil uji analisis deskriptif kuantitatif (QDA) menunjukkan bahwa *flakes* dengan fortifikasi nanokapsul karotenoid *A. platensis* (0,24%) dan penambahan bubuk kayu manis dapat menghilangkan persepsi aroma *arthrospira* yang dapat menimbulkan adanya aroma yang tidak disukai (*off-flavor*). *Flakes* dengan penerimaan konsumen, analisis deskriptif kuantitatif, kadar air, kadar karotenoid total, dan aktivitas antioksidan terbaik terdapat pada perlakuan fortifikasi nanokapsul karotenoid *A. platensis* (0,24 %) dengan penambahan bubuk kayu manis sebesar 1,25 %.

Kata kunci : *A. platensis*, aktivitas antioksidan, *flakes*, karotenoid total, nanokapsul karotenoid, penerimaan, QDA

Abstract

THE EFFECT OF ADDITIONAL CINNAMON POWDER ON CHARACTERISTICS OF FLAKES THAT FORTIFIED BY CAROTENOID NANOCAPSULES OF *Arthrospira platensis*

This study aims to determine the effect of the addition of cinnamon powder on the characteristics of flakes fortified by carotenoid nanocapsules of *A. platensis*. This research consists of two stages. In the first stage a hedonic analysis was carried out to determine the most preferred treatment, with the addition of *A. platensis* powder (2.5%) and fortification of carotenoid nanocapsules of *A. platensis* (0.24%) with various concentrations of cinnamon powder (0%, 0.625%, 1.25%, 1,875%, 2,5%) with the results showed that flakes with the treatment of fortification of carotenoid nanocapsules of *A. platensis* (0.24%) with the 0,625 % cinnamon powder were the most preferred treatment by consumers when compared to the treatment with the addition of *A. platensis* powder (2.5%) so that changes were made for a concentration of the addition of cinnamon powder for the next analysis stage. In the second stage, with the addition of *A. platensis* powder (2.5%) and fortification of carotenoid nanocapsules of *A. platensis* (0.24%) with variations concentration of cinnamon powder (0%, 0.156%, 0.312%, 0.625%, 1.25 %) which was used for the analysis of quantitative descriptive analysis (QDA), moisture content analysis, total carotenoid content analysis, and antioxidant activity analysis. This study used a one-factor Completely Randomized Design (CRD) (3 replications). Data were analyzed using non-parametric analysis (Kruskal-Wallis) and further tested by Mann-Whitney with a confidence level of 95%. The results showed that fortification of carotenoid nanocapsules of *A. platensis* (0.24%) with the addition of cinnamon powder in various concentrations had an effect on increasing consumer acceptance, total carotenoid content, and antioxidant activity, but decreased moisture content when compared to the treatment with the addition of 2,5 % *A. platensis* powder. The results of the Quantitative Descriptive Analysis (QDA) test showed that flakes with treatment fortification of carotenoid nanocapsules of *A. platensis* (0.24%) with the addition of cinnamon powder can eliminate the perception of the aroma of arthrospira which can cause an off-flavor to the flakes. Flakes with the best consumer acceptance, quantitative descriptive analysis, water content, total carotenoid content, and antioxidant activity were found in the fortification treatment by carotenoid nanocapsules of *A. platensis* (0.24%) with the addition of cinnamon powder by 1.25%.

Keywords : *A. platensis*, acceptance, antioxidant activity, carotenoid nanocapsules, flakes, QDA, total carotenoids