

Intisari

PENGARUH PENAMBAHAN *Arthrospira platensis* TERHADAP KARAKTERISTIK FISIK DAN AKTIVITAS ANTIOKSIDAN EDIBLE FILM KITOSAN-CMC

Edible film merupakan salah satu kemasan produk pangan yang dapat berasal dari kitosan yang dikombinasikan dengan CMC (*Carboxymethyl Cellulose*). Penambahan *Arthrospira platensis* bertujuan untuk meningkatkan sifat antioksidan pada *edible film* ini. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan *Arthrospira platensis* terhadap karakteristik *edible film* berbahan kitosan 2%, CMC 0,5%, gliserol 0,5% dengan perbandingan volume kitosan:CMC:*Arthrospira platensis* adalah 10:1: 1. Rancangan percobaan yang digunakan adalah Rancangan Acak Lengkap (RAL) dengan penambahan larutan *Arthrospira platensis* (0%, 0,5%, 1%, 1,5% dan 2%). Karakteristik *edible film* yang diuji pada penelitian ini meliputi viskositas, ketebalan, pH larutan *edible film*, pH *edible film*, kadar air, kelarutan, kuat tarik, elongasi, aktivitas antioksidan dan gugus fungsi yang terbentuk. Penambahan larutan *Arthrospira platensis* konsentrasi 2% menghasilkan karakteristik *edible film* kitosan-CMC paling tinggi dengan nilai viskositas 1042,67 cP, ketebalan 0,0820 mm, kadar air 13,88%, kelarutan 27,59%, pH larutan *edible film* 4,7, pH *edible film* 5,73, kuat tarik 21,53 MPa, elongasi 43,58%, aktivitas antioksidan 11,20%, dan tidak terbentuk gugus baru pada film berdasarkan analisis FTIR. Hal ini menunjukkan bahwa penambahan larutan *Arthrospira platensis* pada *edible film* kitosan-CMC berpotensi digunakan sebagai kemasan aktif untuk mencegah oksidasi.

Kata kunci: *edible film*, kitosan, *Arthrospira platensis*, CMC, antioksidan

Abstract

EFFECT OF *Arthrospira platensis* ADDITION ON PHYSICAL CHARACTERISTICS AND ANTIOXIDANT ACTIVITY OF CHITOSAN-CMC EDIBLE FILM

Edible film is one of the packaging for food products that can derived from chitosan that combine with CMC (Carboxymethyl Cellulose). The addition of *Arthrospira platensis* is purposed to improve the antioxidant properties in this edible film. This study aims to determine the effect of adding *Arthrospira platensis* to the characteristics of edible films made from 2% chitosan, 0,5% CMC, 0,5% glycerol with a volume ratio of chitosan:CMC:*Arthrospira platensis* is 10:1:1. The experimental design used was a completely randomized design (CRD) with the addition of *Arthrospira platensis* solution (0%, 0,5%, 1%, 1,5% and 2%). The characteristics of the edible film tested in this study included viscosity, thickness, pH of the edible film solution, film pH, water content, solubility, tensile strength, elongation, antioxidant activity and functional groups formed. The addition of 2% concentration *Arthrospira platensis* solution produced the highest physical characteristics with viscosity value of 1042.67 cP, thickness of 0.0820 mm, water content of 13.88%, solubility of 27.59%, pH of edible film solution of 4.7, film pH of 5.73, tensile strength of 21.53 MPa, elongation of 43.58%, antioxidant activity of 11.20%, and no new groups formed on the film based on FTIR analysis. It means that addition *Arthrospira platensis* solution on chitosan-CMC edible film potentially used as active packaging to prevent oxidation.

Keywords: edible film, chitosan, *Arthrospira platensis*, CMC, antioxidant