

CHARACTERISTICS OF ACTIVE PACKAGING FROM STARRY TRIGGERFISH (*ABALISTES STELLARIS*) GELATIN WITH THE ADDITION OF MANGROVE *RHIZOPHORA APICULATA* LEAF EXTRACTS

Rahmi Nurdiani^{1*}, Yessy Aprilia Susanti Hutabalian², Abdul Aziz Jaziri¹, Nurul Huda³

¹Department of Fishery Product Technology, Faculty of Fisheries and Marine Science,
Brawijaya University, Jalan Veteran No.16, 65145 Malang, East Java, Indonesia

²Bioseafood Research Group, Faculty of Fisheries and Marine Science,
Brawijaya University, Jalan Veteran No.16, 65145 Malang, East Java, Indonesia

³Faculty of Food Science and Nutrition, University of Malaysia Sabah,
Jalan UMS, 88400 Kinabalu City, Sabah, Malaysia

*e-mail: rahmi_nurdiani@ub.ac.id

Abstract

Gelatin is one of the potential alternative packaging to replace plastics by modifying it with the addition of active agents, such as plants extract. The purpose of this study was to investigate the influence of *Rhizophora apiculata* leaves extract on active packaging.

The experimental design used was the completely randomized design with five treatments (0%, 1%, 3%, 5%, and 7%) of the addition of mangrove leaves extract in the preparation of active packaging. In this research we determined the effect of *Rhizophora apiculata* leaf extract on the characteristics (thickness by using a screw thread micrometer, tensile strength by using Tensile Strength, elongation by using elongation Tester SSB Industries model 0500, water vapor transmission method?, water content by using a water vapor transmission test, pH by following British Standard Institution by using pH meter, antioxidant DPPH method, and antibacterial activity by using the disk diffusion method) of active packaging. Data were analyzed using the analysis of variance.

The results showed that the characteristics (thickness, tensile strength, elongation, water vapor transmission, water content, pH, and antioxidant and antibacterial activity) of active packaging were significantly ($P < 0.05$) affected by the addition of *R. apiculata* extract. A higher concentration of *R. apiculata* leaf extract increased the thickness, tensile strength, water content, antioxidant activity, and antibacterial activity of active film.

These results suggested that fish gelatin containing *R. apiculata* leaves extract has great potential as an active packaging with antioxidant and antibacterial properties that can improve the shelf life of food products.

Key words: Active packaging, *Abalistes stellaris*, *Rhizophora apiculata* extracts, Fish gelatin.