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Synthesis of Antimicrobial Edible Film From Mahakam River Pole Shrimp Chitosan (*Macrobrachium Rosenbergii*)

Daniel^{1,2,a)}, Djihan Ryn Pratiwi^{1,2}, Eva Marlina^{1,2}, Rita Hairani^{1,2}, A R Magdaleni³

¹Department of Chemistry, Faculty of Mathematics and Natural Sciences, Mulawarman University, Samarinda, East Kalimantan, Indonesia

²Organic Chemistry Laboratory, Faculty of Mathematics and Natural Sciences, Mulawarman University, Samarinda, East Kalimantan, Indonesia

³Faculty of Medicine, Mulawarman University, Samarinda, East Kalimantan, Indonesia

^{a)}Corresponding Author: daniel_trg08@yahoo.com

Abstract

Synthesis of *N*-salicyl chitosan with the addition of honey as an development of antimicrobial edible film was experimented. The synthesis process of *N*-salicyl chitosan was carried out by reacting chitosan with methyl salicylate derived from esterification of salicylic acid with methanol. Edible film was made by dissolving *N*-salicyl chitosan with 1% lactic acid solution and then added with honey. The analysis result of *N*-salicyl chitosan compound with FT-IR showed the functional groups O-H, N-H, C-H *sp*³, C-H *sp*², C=O Amide, C=C aromatic, C-O-C, C-OH and C-N. The characteristics of edible film were 0.32 gr (size 2x2 cm), 16.20% moisture content, 0.41 mm thickness, water vapour transmission rate 18.36 gr/m²/hour, tensile strength 1 N /mm² and 10% elongation percentage. Based on results of the antibacterial activity test of *N*-salicyl chitosan with the addition of honey, it inhibited *Salmonella typhi* ATCC 422 and did not inhibit *Streptococcus sobrinus* KCCM 11898.