PENGARUH PERBEDAAN PERLAKUAN *CROSSLINKING* TERHADAP *EDIBLE FILM* BERBAHAN DASAR GELATIN IKAN NILA (*Oreochromis niloticus*) BERDASARKAN KARAKTERISTIKNYA

SKRIPSI

Diajukan untuk Memenuhi Sebagian Syarat Memperoleh Gelar Sarjana Saintek

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2021

PENGARUH PERBEDAAN PERLAKUAN *CROSSLINKING* TERHADAP *EDIBLE FILM* BERBAHAN DASAR GELATIN IKAN NILA (*Oreochromis niloticus*) BERDASARKAN KARAKTERISTIKNYA

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Agustus 2021

HALAMAN PENGESAHAN

PENGARUH PERBEDAAN PERLAKUAN *CROSSLINKING* TERHADAP EDIBLE FILM BERBAHAN DASAR GELATIN IKAN NILA (*Oreochromis niloticus*) BERDASARKAN KARAKTERISTIKNYA

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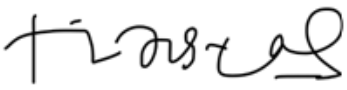

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ABSTRAK

Edible film merupakan solusi yang dapat digunakan untuk mengurangi penggunaan plastik pada kemasan suatu produk karena sifatnya yang ramah lingkungan. Gelatin yang berasal dari ikan Nila dapat digunakan sebagai bahan pembuat *edible film*. Namun kelemahan dari *edible film* berbahan dasar gelatin yakni pada karakteristik kuat tarik, elongasi, dan permeabilitas uap airnya. Oleh karena itu, dilakukan modifikasi dengan teknik *cross-linking*. Penelitian dilakukan untuk mengetahui pengaruh modifikasi *cross-linking* dan pengaruh dari perbedaan agen *cross-linking* yang digunakan pada *edible film* berdasarkan karakteristik yang dihasilkan serta mengetahui aplikasinya dalam bidang pangan. Penelitian dilakukan dengan menggunakan metode *Systematic Literature Review* (SLR) untuk menemukan data sekunder mengenai hasil karakterisasi *edible film* berbahan dasar gelatin ikan yang dimodifikasi dengan *cross-linking*. Agen *cross-linking* yang digunakan berasal dari bahan alam berupa polifenol, minya katsiri, dan lipida. Hasil didapatkan dengan penggunaan polifenol sebagai agen *cross-linking* dapat menyebabkan peningkatan kuat tarik dan penurunan elongasi dan permeabilitas uap air. Penggunaan minyak atsiri dan lipida sebagai agen *cross-linking* menghasilkan penurunan kuat tarik dan permeabilitas uap air, sedangkan elongasinya mengalami peningkatan. Aplikasi *edible film* dengan penggunaan polifenol teh sebagai agen *cross-linking* dapat digunakan sebagai pengemas bahan pangan berbentuk cair atau kental sedangkan penggunaan minyak atsiri dan lipida sebagai agen *cross-linking* dapat digunakan sebagai pengemas bahan pangan ringan.

Kata kunci: *Edible film*, *cross-linking*, gelatin, kuat tarik, elongasi, permeabilitas uap air

ABSTRACT

Edible film is a solution that can be used to reduce the use of plastic in the packaging of a product because it is environmentally friendly. Gelatin derived from Tilapia can be used as an ingredient for making edible films. However, the weakness of gelatin-based edible films are the characteristics of tensile strength, elongation, and water vapor permeability. Therefore, modifications were made with the cross-linking technique. The study was conducted to determine the effect of cross-linking modification and the effect of different cross-linking agents used in edible films based on the characteristics produced and to determine their application in the food sector. The study was conducted using the Systematic Literature Review (SLR) method to find secondary data regarding the results of the characterization of edible films made from fish gelatin modified by cross-linking. The cross-linking agents used are derived from natural ingredients in the form of polyphenols, essential oils, and lipids. The results obtained with the use of polyphenols as cross-linking agents can cause an increase in tensile strength and a decrease in elongation and water vapor permeability. The use of essential oils and lipids as cross-linking agents resulted in a decrease in tensile strength and water vapor permeability, while the elongation increased. Edible film applications with the use of tea polyphenols as cross-linking agents can be used as food packaging in liquid or thick product, while the use of essential oils and lipids as cross-linking agents can be used as packaging for snacks.

Keywords:*Edible film, cross-linking, gelatin, tensile strength, elongation, water vapour permeability*

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