

## ABSTRAK

### PREPARASI DAN KARAKTERISASI *EDIBLE FILM* DARI POLIBLEND PATI SUKUN-KITOSAN

Plastik konvensional untuk kemasan pangan yang berasal dari minyak bumi sumbernya semakin terbatas, karena tidak mudah didegradasi sehingga menyebabkan permasalahan lingkungan. Oleh karena itu, penggunaan plastik *biodegradable* dan terbuat dari bahan terbarukan seperti *edible film* merupakan salah satu solusi. Bahan baku utamanya yaitu pati, karena keberadaannya melimpah serta beragam di Indonesia, salah satunya pati sukun yang memiliki kandungan pati cukup tinggi (60%). Namun *edible film* berbahan dasar pati saja memberikan sifat mekanik dan ketahanan air yang masih rendah. Pada penelitian ini akan dipreparasi *edible film* dari poliblend pati sukun-kitosan dengan penambahan sorbitol. Penambahan kitosan bertujuan memperbaiki sifat mekanik dan ketahanan air sedangkan sorbitol berfungsi sebagai *plasticizer* untuk meningkatkan sifat mekanik *edible film*. Metode yang dilakukan yaitu preparasi dan karakterisasi pati sukun (analisis kadar pati total, kadar amilosa, kadar amilopektin, sifat amilografi, kadar air serta analisis derajat kecerahan) kemudian preparasi dan karakterisasi *edible film* (analisis sifat mekanik, ketahanan air dan analisis morfologi permukaan *edible film* menggunakan SEM). Hasil karakterisasi pati sukun yang diperoleh yaitu kadar pati total 76,39%, kadar amilosa dan amilopektin berturut-turut 26,76% dan 73,24%, suhu gelatinisasi pati sukun 73,98°C, kadar air 22,38% serta derajat kecerahan yang menunjukkan karakteristik cerah dan berwarna abu-abu pucat. Penambahan kitosan berpengaruh terhadap ketahanan air dan sifat mekanik *edible film* pati sukun yang dihasilkan. Dengan bertambahnya kitosan, kuat tarik dan ketahanan air cenderung meningkat. Hasil terbaik pada penelitian ini dengan nilai *water uptake* sebesar 212,98% pada formulasi pati sukun-kitosan 6:4 g/g, nilai kuat tarik yang optimum pada formulasi pati sukun-kitosan 6:4 sebesar 16,34 MPa, nilai perpanjangan putus (elongasi) terbaik pada formulasi 7:3 sebesar 8,40% dan elastisitas (*modulus young*) terbaik pada formulasi pati sukun-kitosan 6:4 sebesar 2,72 MPa. Hasil analisis morfologi dengan SEM bahwa *edible film* pada formulasi pati sukun-kitosan 6:4 yang dihasilkan permukaannya masih terdapat pori dan retakan.

**Kata kunci:** *edible film*, pati sukun, kitosan, sorbitol, SEM.

## ABSTRACT

### **PREPARATION AND CHARACTERIZATION OF EDIBLE FILM FROM POLIBLEND OF BREADFRUIT STARCH-CHITOSAN**

*Conventional plastic for the food packaging which derived from petroleum has limited source, because of its difficultness to degrade so that cause the environmental problems. Therefore, the usage of biodegradable and renewable plastic such as edible film is one of solution. The main raw material is from starch, because it is abundant and varied in Indonesia, one of them is breadfruit starch which has enough high starch content (60%). But edible film based on starch give less mechanical properties and less water resistance. In this research the edible film was prepared from poliblend of breadfruit starch-chitosan with sorbitol addition. Addition of chitosan aim to repair the mechanical properties and water resistance, while sorbitol as plasticizer to increase the mechanical properties of edible film. The Method was done, preparation and characterization of breadfruit starch (analysis of total starch rate, amylose content, amylopectin content, amilografi property, water content and also analysis the degree of brightness) then preparation and characterization of edible film (analysis of the mechanical properties, water resistance and analysis the surface morphology of edible film using SEM). The result characterization of breadfruit starch was obtained for total starch content 76.39%, content of amylose and amylopectin were 26.76% and 73.24% respectively, the gelatinitation temperature of breadfruit starch was 73.98°C, water content 22,38% and the degree of brightness showed bright characteristic and pale grey colour. The addition of chitosan can influence on water resistance and mechanical properties of edible film of breadfruit starch which was yielded. By increasing chitosan concentration, the tensile strength and water resistance increase tendencious. The best result in this research for the value of water uptake was 212.98% on breadfruit starch-chitosan formulation 6:4 g/g, the optimum value of tensile strength on breadfruit starch-chitosan formulation 6:4 was 16.34 MPa, the best value of elongation on formulation 7:3 was 8,40%, and best elasticity (modulus young) on breadfruit starch-chitosan formulation 6:4 was 2,72 MPa. Result of morphological analysis by SEM showed that the edible film of breadfruit starch-chitosan formulation 6:4 there are still pores and cracks.*

**Key words:** *edible film, breadfruit starch, chitosan, sorbitol, SEM.*