ABSTRAK

SINTESIS DAN KARAKTERISASI *EDIBLE FILM* DARI PATI LABU KUNING (*Cucurbita Moschata*)-KITOSAN

Penggunaan plastik kini mengalami peningkatan terutama digunakan sebagai pengemas makanan, namun plastik komersil memiliki kekurangan yaitu sulit terdegradasi di alam sehingga menyebabkan terjadinya pencemaran lingkungan. Hal ini mendorong para peneliti untuk mengembangkan plastik *biodegradable* dalam bentuk *edible film* dari bahan alami yang mudah didapat sebagai solusi untuk mengurangi limbah plastik. *Edible film* berbahan dasar pati labu kuning selain dapat mengurangi pencemaran lingkungan juga dapat memanfaatkan sumber daya alam yang ada. Namun *edible film* hanya berbahan pati memiliki sifat mekanik dan ketahanan air yang rendah, sehingga diberi tambahan kitosan dan sorbitol. Penambahan kitosan bertujuan untuk meningkatkan sifat mekanik seperti kuat tarik dan ketahanan air pada *edible film* sementara penambahan sorbitol berfungsi sebagai *plasticizer* yang dapat meningkatkan sifat mekanik seperti elastisitas pada *edible film*. Metode pembuatan *edible film* ini terbagi menjadi dua, yang pertama dilakukan yaitu ekstraksi pati labu kuning dan pembuatan *edible film* yang kemudian dikarakterisasi. Hasil karakterisasi pati labu kuning memiliki kadar pati sebesar 73,77% dan kadar air 9%. Hasil karakterisasi *edible film* menunjukkan nilai kuat tarik terbaik pada variasi pati:kitosan 5:5 sebesar 1,6539 Mpa, elongasi terbaik pada variasi pati:kitosan 5:5 sebesar 42,48%, dan elastisitas terbaik pada variasi 5:5 sebesar 0,0389 Mpa, dan *water uptake* terbaik variasi pati:kitosan 5:5 sebesar 25,92%. Hasil analisis morfologi dengan SEM pada variasi pati:kitosan 5:5 permukaannya tidak rapat serta masih terdapat pori dan gelembung. Pada hasil FTIR menunjukkan adanya gugus fungsi OH, CO,C-C,dan NH dalam *edible film* ini, dimana adanya gugus fungsi CO dan OH menunjukkan bahwa *edible film* dapat terdegradasi.

Kata kunci: *edible film*; pati labu kuning; kitosan; sorbitol; SEM; FTIR

ABSTRACT

SYNTHESIS AND CHARACTERIZATION OF EDIBLE FILM FROM YELLOW PUMPKIN (Cucurbita Moschata) – CHITOSAN

The use of plastics is now increasing, especially used as food packaging, but commercial plastics have a disadvantage, namely that they are difficult to degrade in nature, causing environmental pollution. This encourages researchers to develop biodegradable plastics in the form of edible films from natural materials that are easily available as a solution to reducing plastic waste. Besides being able to reduce environmental pollution, edible films made from pumpkin starch can also take advantage of existing natural resources. However, edible films made from starch only have low mechanical properties and water resistance, so that chitosan and sorbitol are added. The addition of chitosan aims to improve mechanical properties such as tensile strength and water resistance in edible films, while the addition of sorbitol functions as a plasticizer which can improve mechanical properties such as elasticity in edible films. The method for making edible films is divided into two, the first is to extract pumpkin starch and manufacture of edible films which are then characterized. The results of the characterization of pumpkin starch had a starch content of 73.77% and a moisture content of 9%. The results of characterization of edible film showed the best tensile strength value in the variation of starch: chitosan 5: 5 was 1.6539 Mpa, the best elongation in the variety of starch: chitosan 5: 5 was 42.48%, and the best elasticity at 5: 5 variation was 0, 0389 MPa, and the best water uptake variation of starch: chitosan 5: 5 of 25.92%. The results of morphological analysis by SEM on the variation of starch: chitosan 5: 5 were not dense and there were still pores and bubbles. The FTIR results show the presence of OH, CO, C-C, and NH functional groups in this edible film, where the presence of CO and OH functional groups indicates that the edible film can be degraded.

***Keywords**: edible film; pumpkin starch; chitosan; sorbitol; SEM; FTIR*