ABSTRAK

Bioplastik merupakan plastik ramah lingkungan yang digunakan sebagai salah satu upaya dalam menanggulangi permasalahan plastik konvensional. Bioplastik pada penelitian ini berbahan dasar pati kulit singkong dan kitosan kulit udang dengan penambahan *plasticizer* PEG. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan *plasticizer* PEG terhadap karakteristik bioplastik yang dihasilkan. Variasi penambahan PEG yang digunakan yaitu 10%, 15%, dan 20%. Pembuatan bioplastik menggunakan metode *blending*. Hasil penelitian menunjukkan pengaruh penambahan PEG yaitu memperbesar nilai ketebalan, kadar air, kelarutan dalam air, dan mempercepat proses biodegradasi bioplastik, namun memperkecil nilai ketahanan air bioplastik. Hasil penelitian bioplastik yang optimal yaitu pada penambahan *plasticizer* PEG 10% dengan nilai ketebalan 0,23 mm; ketahanan air 76,93%; kadar air 14,05%; kelarutan dalam air 18,02%; kuat tarik 8,33 MPa; elongasi 2%; modulus Young 4,17 MPa dan persentase penurunan berat dalam uji biodegradasi selama 10 hari sebesar 91,80%.

Kata kunci: bioplastik, kitosan, modulus Young, pati kulit singkong, PEG

ABSTRACT

Bioplastics are eco-friendly plastics that are used to overcome the problem of conventional plastics. The bioplastics in this research was made from cassava peel starch and chitosan from shrimp shell with the addition of PEG *plasticizer*. The purpose of this research was to determined the effect of adding PEG to the characteristics of the resulting bioplastics. Variations in the addition of PEG used were 10%, 15%, and 20%. The bioplastics were made using the blending method. The results showed that the addition of PEG was tended to increase the value of thickness, moisture content, water solubility, and accelerate the biodegradation process of bioplastics, but tended to reduce the value of water resistance of bioplastiks. The optimal bioplastics in this reseach were the addition of 10% PEG with the thickness value of 0.23 mm; water resistance of 76.93%; water content of 14.05%; solubility in water of 18.02%; tensile strength of 8.33 MPa; elongation of 2%; Young's modulus of 4.17 MPa and the higher percentage of weight loss in the biodegradation test for 10 days of 91,80%.

Keywords: bioplastics, cassava peel starch, chitosan, PEG, Young’s modulus