

ABSTRAK

Bioplastik merupakan plastik biopolimer yang ramah lingkungan karena mudah diuraikan oleh mikroorganisme sehingga dapat menjadi alternatif pengganti plastik konvensional. Pati kulit singkong dan kitosan yang berasal dari kulit udang berpotensi sebagai bahan dasar dalam pembuatan bioplastik dengan penambahan *plasticizer* gliserol. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi *plasticizer* gliserol terhadap karakteristik bioplastik yang dihasilkan dengan menggunakan metode *blending*. Pembuatan bioplastik pada penelitian ini menggunakan variasi konsentrasi gliserol 0, 15, 25, dan 35%. Karakterisasi bioplastik meliputi pengukuran ketebalan, uji ketahanan air, pengukuran kadar air, pengukuran kelarutan dalam air, penentuan kuat tarik, penentuan elongasi, dan uji biodegradasi. Penambahan konsentrasi gliserol berbanding lurus dengan nilai ketebalan, kadar air, kelarutan dalam air, dan elongasi, serta berbanding terbalik dengan nilai ketahanan air dan kuat tarik yang dihasilkan. Konsentrasi gliserol yang semakin meningkat cenderung akan mempercepat proses biodegradasi dari bioplastik. Hasil karakteristik bioplastik yang optimum terdapat pada penambahan konsentrasi gliserol 25% dengan nilai ketebalan sebesar 0,248 mm; ketahanan air sebesar 69,64%; kadar air sebesar 18,44%; kelarutan dalam air sebesar 21,33%; kuat tarik sebesar 1,04 MPa; elongasi sebesar 21%; dan penurunan berat bioplastik pada uji biodegradasi di hari ke-10 sebesar 100%.

Kata kunci: Bioplastik, gliserol, kitosan, pati

ABSTRACT

Bioplastic is a biopolymer plastic which is environmentally friendly because it is easily decomposed by microorganisms so that it can be an alternative to conventional plastics. Cassava peel starch and chitosan derived from shrimp shells are the basic ingredients in the manufacture of bioplastics with the addition of glycerol as a plasticizer. This study aims to determine the effect of variations in the concentration of glycerol plasticizer on the characteristics of bioplastics produced by using the blending method. The manufacture of bioplastics in this study used variations in glycerol concentrations of 0, 15, 25, and 35%. Bioplastic characterization includes thickness measurement, air resistance test, water content measurement, air solubility measurement, making tensile strength, making elongation, and biodegradation test. The addition of glycerol concentration was directly proportional to the value of thickness, water content, water solubility, and elongation, and inversely proportional to the value of resistance and the resulting tensile strength. The increasing concentration of glycerol will accelerate for the biodegradation process of bioplastics. The results of the optimum bioplastic characteristics were found in the addition of 25% glycerol concentration with a thickness of 0,248 mm; water resistance of 69,64%; water content of 18,44%; water solubility of 21,33%; tensile strength of 1,04 MPa; elongation of 21%; and a decrease in the weight of bioplastics in the biodegradation test on the 10th day by 100%.

Keywords: *Bioplastic, glycerol, chitosan, starch*