ABSTRACT

Corn Starch As A Sources of Bioplastics (*Zea mays Linn*)

By:

Elsa Novia Wita Siregar (1110412017)

Prof. Dr. Novesar Jamarun, MS Dr. Zulhadjri, M.Eng

Bioplastics are alternatives offered to overcome the environmental problems caused by plastics waste. The research on the use of corn starch with plasticizer glycerol and CPO (Crude Palm Oil) as the raw materials of bioplastics have been conducted. Corn starch-based prepared with various volume of glycerol (1; 1,5; 2; 2,5 and 3 mL)and various weight of starch (4, 6, 8, 10 and 12 g) and the addition) (0,2; 0,4; 0,6; 0,8; dan 1 mL). of Crude Palm Oil (CPO). Bioplastic with 2 mL glycerol and weight of 8 g starch showed the highest tensile strength values of 50.35 MPa and increased with the addition of CPO (Crude Palm Oil) 0.6 mL of 51.63 MPa. The result of SEM (Scanning Electron Microscopy) showed a less homogeneity because the amylopectin molecules that have not been broken. Best SEM is bioplastics with the addition of 0.6 mL of CPO (Crude Palm Oil) with a smoother surface. Analysis Fourier Transformation Infra Red (FTIR) showed peak appears at wave number 3200 - 3300 cm^{-1} indicate the presence of hydroxyl group OH contained in the starch polymer. In general, FTIR analysis on bioplastics did not show the formation of a new functional group in bioplastics. Bioplastics degradation rate with the addition of CPO (Crude Palm Oil) is slower than the bioplastics without CPO (Crude Palm Oil).

Keywords: Bioplastics, corn starch, plistisizer, tensile strength