

EFFECT OF GLYCEROL ON DEFORMATION ABILITY OF WATER HYACINTH BIODEGRADABLE PLASTIC

ABSTRACT

A study have been conducted on the effect of glycerol on the deformation ability of water hyacinth biodegradable plastic. Water hyacinth powder is delignificated first by using 7.5% NaOH at 60°C for 2.5 hours and bleached using H₂O₂ with 4% with NaOH until pH 11 then soaked and heated at 55°C for 2 hours. Biodegradable plastic was made using water hyacinth powder, The weight of cornstarch varied from 5, 6, 7, 8, 9 and 10 grams and the volume of glycerol was increased by 1, 2, 3, 4 and 5 grams. The resulting biodegradable plastics were characterized using FT-IR, microscopy, and tensile and biodegradable tests. The best deformation value is found in the sample with the addition of 1 gram of glycerol which is 4.0747 mm and a stress value of 14.8558 Mpa with with the ability to bear a force of 14.8558 newtons. and has a good ability to decompose by soil microorganisms within 12 days.

Keywords: biodegradable, glycerol, water hyacinth, deformation, stress.