ABSTRACT

THE EFFECT OF GLYCEROL AND CMC CONCENTRATION ON CHARACTERISTICS OF WASTE MELON FRUIT (Cucumis melo L) BIODEGRADABLE FILM

By

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Biodegradable films are films which will decompose in nature with the help of microorganisms. To obtain biodegradable films, raw materials containing cellulose is added with glycerol and CMC in order to obtain a more flexible plastic and stable film. Melon fruit waste can used as biodegradable raw materials of *biodegradable film* because it contains high cellulose. This research was aimed to finding the concentration of glycerol and CMC formulations to produce biodegradable film. The research was arranged in a Complete Randomized Block Design (CRBD) with three replications. This study uses two, the first factor glycerol concentration 0,5%, 1%, and 1,5%. The second factor CMC concentration 1%, 2%, and 3%.

The data of tensile strength test and the thickness of the test processed by analysis of variance to get the error variance by using ANOVA and further tested with HSD at 5% and 1% of significance level to determine whether there is a difference between treatments. The homogenity was analyzed by using Bartlett test and additivity was analyzed by using Tukey test. While the data for biodegradability test was showed by visual sight and analyzed descriptively. The results showed that the concentration of glycerol and CMC had significant affect tensile strength biodegradable films but not on thickness of the biodegradable films. The best results was found on 0.5% glycerol and 3% CMC with produce tensile strength values 143, 249 MPa and thickness of 0.116 mm. The biodegradable film had composed on 21 days with biodegradability test.

Keyword : biodegradable film, waste melon fruit cellulose, glycerol, CMC