FABRICATION AND CHARACTERIZATION OF JELTRATE ALGINATE BLEND WITH JACKFRUIT SEED STARCH FOR BIODEGRADABLE PLASTIC

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Physics
in the Faculty of Applied Sciences
Universiti Teknologi MARA

JULY 2017

ABSTRACT

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The Jackfruit (*Artocarpus heterophyllus*) seeds contain high portion of amylose, which makes them potential materials for biodegradable films. The objective of this study is to develop biodegradable plastics composed of jackfruit seed flours mix with Jeltrate Alginate flour and some of glycerol as plasticizer. The plastics were prepared by dispersing flours in water, adding 0.1M of hydrochloric acid, 0.1M of sodium hydroxide, glycerol and some formalin, heating the mixture, casting the solution in a molding, and dried them at room temperature for 4 hours. Glycerol contributes to the flexibility of the samples, while reduces the strength of the film. The tensile strength and elongation at break (tensile strain) increase as the percentage of thermoplastic starch increases and Jeltrate alginate as constant variable. The degradation components in the fabricated bioplastic after 8 weeks buried in the soil were, obviously an O-H bond and Si-H (saline) bond. The most degradation in bonds in the fabricated bioplastic is sample E which have ratio of 1:1 of starch and Jeltrate alginate respectively. Therefore, Jackfruit's seed starch and Jeltrate alginate are potential raw material for biodegradable bioplastic.

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