FABRICATION AND CHARACTERIZATION OF JACKFRUIT *(ARTOCARPUS HETEROPHYLLUS)* SEED POWDER & SAGO STARCH BLEND AS BIODEGRADABLE BIOPLASTIC

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ABSTRACT

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Jackfruit *(Artocarpus Heterophyllus)* is a very common food in Asia and the seed has a very high amylose content quite similar to sago starch. Jackfruit seed and sago are very suitable raw materials to be used in production of biodegradable bioplastic. The objective of this research is to prepare biodegradable bioplastic made from natural resources and to utilize the use of potential waste materials. The plastic was prepared by mixing jackfruit seed flour and sago flour in distilled water with addition of 0.1 M hydrochloric acid (HCl). It was stirred and heated for 80 °C and mixed with glycerol. Then, the mixture was neutralized with 0.1 M sodium hydroxide (NaOH), casted on acrylic plate and dried for several hours. The plastic was tested for its mechanical strength, water absorption, soil burial test and scanned by using Fourier Transform Infrared spectroscopy (FT-IR). The maximum mechanical strength obtained was 2.06 MPa at 70% jackfruit seed powder to sago starch ratio. The decomposition rate of biodegradable plastic was indicated by observing the decrease of the FT-IR peaks intensity and broadening of the wavenumber (cm^{-1}) due to degradation of starch in the bioplastic. Sample with 100% jackfruit seed percentage revealed to degrade fastest compared to other samples.

TABLE OF CONTENTS

LIST OF FIGURES