

**THE EFFECT OF ELECTRON BEAM ON THE  
MECHANICAL PROPERTIES OF JACKFRUIT SEED  
STRACH/POLYVINYL ALCOHOL BLEND BASED ON  
THE POLYMERS COMPOSITE**

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## **ABSTRACT**

### **THE EFFECT OF ELECTRON BEAM ON THE MECHANICAL PROPERTIES OF JACKFRUIT SEED STARCH/POLYVINYL ALCOHOL BLEND BASED ON THE POLYMERS COMPOSITE**

A systematic study of the mechanical properties of the jackfruit seed starch/ Polyvinyl alcohol blend based on the composite are the major impetus due to promising application in batteries, fuel cells and plastics. The preliminary study has been done on the mechanical properties of the jackfruit seed starch/ Polyvinyl alcohol blend shows the blend jackfruit seed starch and polyvinyl alcohol enhanced the mechanical properties. Biodegradable's development is highly developed and there is significant interest in developing environmentally friendly products that can replace plastics from the petrochemicals. The purpose of this research is to fabricate the jackfruit seed starch film with different percentage of PVA and to study the effect of the electron beam on the mechanical properties of fabricated jackfruit seed starch/PVA blend film. The biodegradable plastics were prepared by mixing different ratios of the PVA into the jackfruits seeds flour in the distilled water with the addition of 0.1 M of Hydrochloric acids (HCl). The mixture was mixed and warmed and the later mixed with the glycerol. The mixture is neutralized with the 0.1 M sodium hydroxide (NaOH) and was cast by using the casting plate technique. Results on the mechanical properties of biodegradable plastics produced show that the tensile strength of the biodegradable plastics has been significantly increased by increasing the percentage of PVA. Using the Fourier Transform Infrared Spectroscopy (FTIR) was used to determine the structure of manufactured biodegradable plastics. The FTIR results indicated that as the percentage of PVA increased, the structural properties change. And the structural features have changed as the irradiation exposure rate increased. Biodegradable plastics with high percentage of PVA and high irradiation dose levels shows better characteristics for biodegradability.