LOW DENSITY POLYETHYLENE (LDPE)/TAPIOCA STARCH COMPOSITES: EFFECT OF TAPIOCA STARCH AND ETHYLENE VINYL ACETATE (EVA) AS COMPATIBILIZER.

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AUTHOR'S DECLARATION

This Final Year Project entitled "Low Density Polyethylene (LDPE)/Tapioca Starch Composites: Effect of Tapioca Starch and Ethylene Vinyl Acetate (Eva) As Compatibilizer" was submitted by Mohamad Hanim Bin Roslan, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Polymer Technology, in the faculty of Applied Sciences and was approved by

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ABSTRACT

LOW DENSITY POLYETHYLENE (LDPE)/TAPIOCA STARCH COMPOSITES: EFFECT OF TAPIOCA STARCH AND EVA AS COMPATIBILIZER.

This study focused on the Low Density Polyethylene (LDPE) and Tapioca Starch with presence of Ethyl Vinyl Acetate as a compatibilizer. There was several percentage of filler loading used such as 0%, 5%, 10%, 15% and 20% in order to give better review of the effect of filler content on the mechanical properties of LDPE/Tapioca starch biocomposite. The polymer were mixed and melted at 20-40 rpm and temperature of 150^{o}C by using melt mixer. The compounding of LDPE/Tapioca starch were formed. Then the characterization studied by Fourier Transform Infrared Spectroscopy (FTIR) showed the interaction between EVA, polymer matrix and the filler content with the functional group present on it. The composite sample were tested with tensile and impact strength to get the insight of its mechanical properties. The value of the tensile strength of LDPE/Tapioca starch was 8.958 MPa of virgin LDPE and 6.359 MPa for 20% of starch content. The result showed a 26.91% and 3.8% of depletion on tensile and impact strength respectively as the filler loading increase. In the other hand, the result shows that of the 5% was the good in result showed that the tensile strength and impact strength test with present of starch content in the biocomposite.