Manihot esculenta: A Raw Material for Biodegradable Plastic

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This project is aimed to test the feasibility of Manihot esculenta as a raw material for the production of biodegradable plastic. Manihot esculenta commonly known as bitter cassava, tapioca, or yucca is a milk-sapped tropical shrub that grows 6 feet to 10 feet tall. Although native to Brazil, it has been planted as an annual root crop in tropical areas around the world for harvest of its stout elongated, tuberous roots from which cassava, tapioca, and other food products are obtained. I produced a biodegradable plastic using cassava starch as its main component. The cassava starch was mixed with water, glycerol, and vinegar. The following were used to test the biodegradable plastic namely; flammability, reaction to Hydrochloric acid (1M) and Sodium Hydroxide (1M), water absorption, reaction to organic solution, tensile and biodegradability. The null hypothesis was biodegradable plastic from Manihot esculenta. It was reactive to the acid and base. Results showed that the hypothesis was rejected. T-test showed the tabulated value was 2.920 with a degree freedom of 2. All of the computed value for acidity, alkalinity, tensile and flammability is higher than the tabulated value therefore, biodegradable plastic is not reactive to acid, alkalinity, tensile and flammability. The hypotheses that was stated was all correct as computed value was compared to the tabulated value using the T-test statistical method.

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