Organic Biodegradable Alternative to Plastic

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Non-biodegradable plastic is prevalent as it’s integrated into every aspect of our lives. The careless disposal of plastic is one of the biggest problems that humanity faces today. It has a devastating impact on the environment. Particularly focusing on commercial chip packets which is challenging to recycle. There is a better and more efficient way of making and disposing of plastic that is less harmful towards humans, animals and the environment. To combat the impeding dilemma of plastic pollution is to produce Organic biodegradable alternative to plastic from ingredients that are organic and Eco friendly. To develop this product, a plasticizer and an acid, together with homemade potato starch were combined on a by keeping the time and temperature fixed. To reach the end product different ratios of the ingredients were experimented with to produce the best possible result. Firstly, the biodegradability rate of the polymer in different circumstances were tested. Thereafter the tendency of the polymer to be water soluble was tested. The synthesized polymer was characterized for its physical properties, thermal stability and surface morphology for it to be suitable to replace the commercial chip packet. These tests were done through the means of Thermo Gravimetric Analysis (TGA), Dynamic Mechanical Analysis (DMA), Shore Hardness test and lastly the Scanning Electron Microscope Test (SEM). The results of the experiment produced a transparent, strong, biodegradable polymer. Investigations showed that the plastic has adequate characteristics substitute will also be substantial to replace the commercial packet.

Awards Won:

Fourth Award of $500