

## Development of Biodegradable Plastic as Mango Fruit Bag

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**Abstract :** Plastics have achieved a dominant position in agriculture because of their transparency, lightness in weight, impermeability to water and their resistance to microbial attack. However, this generates a higher quantity of wastes that are difficult to dispose of by farmers. To address these problems, the project aim to develop and evaluate the biodegradable film for mango fruit bag during development. The PBS and starch were melt-blended in a twin-screw extruder and then blown into film extrusion machine. The physic-chemical-mechanical properties of biodegradable fruit bag were done following standard methods of test. Field testing of fruit bag was also conducted to evaluate its durability and efficiency field condition. The PHilMech-FiC fruit bag is made of biodegradable material measuring 6 x 8 inches with a thickness of 150 microns. The tensile strength is within the range of LDPE while the elongation is within the range of HDPE. It is projected that after thirty-six (36) weeks, the film will be totally degraded. Results of field testing show that the quality of harvested fruits using PHilMech-FiC biodegradable fruit bag in terms of percent marketable, non-marketable and export, peel color at the ripe stage, flesh color, TSS, oBrix, percent edible portion is comparable with the existing bagging materials such as Chinese brown paper bag and old newspaper.

**Keywords :** cassava starch, PBS, biodegradable, chemical, mechanical properties

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