

## **Properties of slow release fertilizer composites made from electron beam-irradiated poly (butylene succinate) compounded with oil palm biomass and fertilizer**

### **ABSTRACT**

Electron beam irradiation at certain absorption doses can affect the chain scission and crosslinking of poly(butylene succinate) (PBS) molecules, as well as their thermal properties. In this study, slow release fertilizer composites were produced by compounding neat PBS with NPK fertilizer and oil palm empty fruit bunch using a twin-screw extrusion method. It was found that granular PBS irradiated with up to 50 kGy remarkably improved the bonding and dispersion of the PBS matrix. The subsequent experiment also showed that the biodegradation of slow release fertilizer composites in soil could be improved via electron beam irradiation.

**Keyword:** Biodegradable polymer; Electron beam irradiation; Oil palm biomass; Composites; Degradation