

## Polylactic acid Membrane for Controlled Release Fertilizer Application

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### Abstract

The present study aims to produce polylactic acid (PLA) membrane for controlled release application. Using spraying technique, the membranes of 0.05 mm and 0.1 mm thickness were prepared. Morphology, tensile test, and release ability of the membrane were conducted. SEM micrographs showed the connected fibrous and porous structure inside the membrane. The tensile strength and Young's modulus of the membrane were lower than typical PLA film. As for controlled release fertilizer, the PLA membrane containing NPK fertilizer immersed in deionized water showed a similar release to the bare fertilizer. The results suggest that the membrane with this micro size of fibrous and porous structure cannot effectively slow down the fertilizer diffusion process.

**Keywords:** Polylactic acid, controlled release fertilizer, membrane