

ABSTRACT

ADDITION OF POTATO STARCH (*Solanum tuberosum* L.) TO MADE THE BEST BIODEGRDABLE FILM (CASE STUDY OF CV. PANDA ALAMI)

By

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Biodegradable films based on starch could be made from various types of plants that contained starch or waste that contained starch. Potato starch waste from the potato stick chips industry could be utilized as basic material for biodegradable films. CV. Panda Alami produced 4 kg of potato starch waste per day, which had not been optimally utilized. This study aimed to determine the effect of adding potato starch waste on the characteristics of biodegradable films, including tensile strength, elongation, and water vapor transmission rate (WVTR). The amount of potato starch waste used in this study were P1 (1 g), P2 (4 g), P3 (7 g), P4 (10 g), P5 (13 g), P6 (16 g) and P7 (19 g). The results showed that the higher the addition of potato starch waste, the higher the tensile strength value of biodegradable films. However, the elongation percentage and water vapor transmission rate decreased. The addition of 13 g of potato starch waste gave the best effect on the characteristics of biodegradable films. Biodegradable films with the addition of 13 gr of potato starch waste had a tensile strength value of 12,29 MPa, an elongation percentage of 0,95%, and a water vapor transmission rate of 5,17 g/m²/hour. The tensile strength and water vapor transmission rate values met the Japanese Industril Standard, with a minimum tensile strength of 0,392 MPa and maximum water vapor transmission rate of 7 gr/m²/hour. However, the elongation percentage in this study did not couply with the Japanese Industrial Standard minimum value of 70%.

Keywords : biodegradable film, starch, waste, potato

ABSTRAK

PENAMBAHAN PATI KENTANG (*Solanum tuberosum L.*) UNTUK MENGHASILKAN *BIODEGRADABLE FILM* TERBAIK (STUDI KASUS CV. PANDA ALAMI)

Oleh

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Biodegradable film berbasis pati dapat dibuat dari berbagai macam jenis tanaman yang mengandung pati atau limbah yang mengandung pati. Limbah pati kentang dari industri keripik stik kentang dapat dimanfaatkan sebagai bahan baku *biodegradable film*. CV. Panda Alami menghasilkan 4kg limbah pati kentang dalam sehari yang belum dimanfaatkan secara optimal. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan limbah pati kentang terhadap karakteristik *biodegradable film* meliputi kuat tarik, persen pemanjangan dan WVTR. Jumlah limbah pati kentang yang digunakan pada penelitian ini yaitu P1 (1 g), P2 (4 g), P3 (7 g), P4 (10 g), P5 (13 g), P6 (16 g) dan P7 (19 g). Hasil penelitian menunjukkan bahwa semakin tinggi penambahan limbah pati kentang, maka akan menghasilkan *biodegradable film* dengan nilai kuat tarik yang semakin tinggi, namun nilai persen pemanjangan dan laju transmisi uap airnya semakin rendah. Penambahan pati kentang dengan berat 13 g memberikan pengaruh terbaik terhadap karakteristik *biodegradable film*. *Biodegradable film* dengan penambahan limbah pati kentang 13 gr memiliki nilai kuat tarik 12,29 MPa, persen pemanjangan sebesar 0,95%, dan laju transmisi uap air 5,17 g/m²/jam. Nilai kuat tarik dan laju transmisi uap air tersebut sudah memenuhi *Japanese Industrial Standard* nilai kuat tarik minimum 0,392 MPa dan transmisi uap air maksimum 7 g/m²/jam. Namun, nilai persen pemanjangan pada penelitian ini belum memenuhi *Japanese Industrial Standard* dengan nilai minimum 70%.

Kata kunci : *biodegradable film*, pati, limbah, kentang