

PEMBUATAN BIOPLASTIK DARI LIMBAH BIJI DURIAN DAN BIJI NANGKA DENGAN MENGGUNAKAN GLISEROL DAN KITOSAN KULIT UDANG

ABSTRAK

Penelitian mengenai film bioplastik (biodegradabel) dengan campuran bahan baku pati biji durian dan pati biji nangka menggunakan gliserol dan penguat alami kitosan kulit udang telah dilakukan. Penelitian ini menggunakan metode melt intercalation dengan variasi 5:30%, 5:45%, 5:55%, 5:65%, 5:75%, yang terdiri dari tiga tahapan. Tahap pertama pati biji durian dan biji nangka diblender kemudian diayak 100 mesh, dan serbuk pati dicampur dengan larutan aquades sampai homogen kemudian ditambahkan gliserol sesuai dengan komposisi dilanjutkan dengan kitosan sampai mendapatkan larutan kental. Tahap kedua larutan bioplastik dicetak dan di ovenkan dengan suhu 70 °C selama 24 jam, dan disimpan dalam desikator. Tahap ketiga film bioplastik dikarakterisasi meliputi : sifat fisis (uji tarik, elongasi, dan biodegradabel). Hasil nilai uji tarik yaitu 27,91 MPa, perpanjangan elongasi sebesar 515,82% dan biodegradabel 97,3% selama 15 hari. Pengujian uji morfologi film bioplastik (biodegradabel), dimulai dari uji SEM menampakan plastik terbaik berdasarkan struktur mikro yaitu 5:65% yang berisi kitosan 2 gram, untuk uji FT-IR yang mana gugusnya terdapat ikatan C=O dan C-O-C yang memiliki sifat mudah terdegradasi. Sifat termal DSC dengan titik leleh 287,72°C. Hasil ini telah memenuhi standar SNI 7188.7:2016 tentang ecoplastik.

Kata Kunci : *Bioplastik, Kitosan Kulit Udang, Pati Biji Nangka Dan Biji Durian*

SARI MUTIARA
INDONESIA

MANUFACTURING OF BIOPLASTIC FROM DURIAN SEEDS AND JACKFRUIT SEEDS WASTE USING GLYCEROL AND SHRIMP SHELLS CHITOSAN

ABSTRACT

Research on bioplastic films (biodegradable) with a mixture of durian seed starch raw materials and jackfruit seed starch using glycerol and natural booster chitosan booster was done. This research uses the melt intercalation method with variations of 5: 30%, 5: 45%, 5: 55%, 5: 65%, 5: 75%, which consists of three stages. The first stage of durian seed jackfruit starch and jackfruit seeds are grounded and then sieved 100 mesh, and starch powder is mixed with distilled water solution until homogeneous then glycerol is added in accordance with the composition followed by chitosan to get a thick solution. The second stage of bioplastic solution is molded and oven at 70 0C for 24 hours, and stored in a desiccator. The third stage of bioplastic films characterized include: physical properties (tensile, elongation, and biodegradable tests). The results of the tensile test value were 27.91 MPa, elongation elongation was 515.82% and biodegradable 97.3% for 15 days. The morphological test of bioplastic films (biodegradable), starting from the SEM test, showed the best plastic based on a microstructure of 5: 65% containing 2 gram chitosan, for FT-IR test in which the group contained C = O and COC bonds which were easily degraded. . DSC thermal properties with melting point 287,720C. These results meet SNI 7188.7: 2016 standards on ecoplastics.

Keywords : *Bioplastics, Shrimp Shells Chitosan, Jackfruit Seeds Starch, Durian Seed Starch*