Intisari

SIFAT FISIK DAN KIMIA BIOPLASTIK BERBAHAN DASAR KITOSAN-KARBOKSIMETIL SELULOSA DENGAN PENAMBAHAN *BEESWAX*

Bioplastik merupakan salah satu alternatif untuk mengurangi sampah plastik. Penambahan karboksimetil selulosa pada bioplastik kitosan telah dibuktikan dapat meningkatkan sifat fisik dan mekanik, namun mempunyai nilai kelarutan dan WVTR yang tinggi sehingga dilakukan penambahan bahan lain yaitu fraksi lipid dengan jenis *beeswax* sebagai komponen hidrofobik. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan *beeswax* terhadap karaktersitik bioplastik berbahan dasar kitosan 2%, karboksimetil selulosa 0,5%, dan gliserol 0,5% dengan rasio volume kitosan:karboksimetil selulosa adalah 1:0,1. Rancangan percobaan yang digunakan adalah Rancangan Acak Lengkap (RAL) dengan perlakuan penambahan beeswax (0, 1, 2, 3, 4, dan 5%). Karaktersitik bioplastik yang diuji pada penelitian ini meliputi uji tebal film, kadar air, densitas, kelarutan, kuat tarik , elongasi, WTVR dan FTIR. Penambahan *beeswax* memberikan pengaruh yang tidak sesuai standar pada parameter kelarutan, kuat tarik, serta memberikan pengaruh yang masih sesuai standar pada parameter ketebalan, densitas, dan elongasi.

Kata kunci : bioplastik, beeswax, kitosan, karboksimetil selulosa, karakteristik

Abstract

PHYSICAL AND CHEMICAL PROPERTIES BIOPLASTIC BASED ON CHITOSAN-CARBOXYMTHYL CELLULOSE WITH BEESWAX ADDITION

Bioplastics is one of the alternatives material to reduce plastic waste. The addition of carboxymthyl cellulose crosslinkers to chitosan bioplastics have been proven to improve physical and mechanical properties, but still has a high solubility and WVTR value so that need to be added lipid fractions such as beeswax as hydrophobic components. This study aims to determine the effect of beeswax addition on the characterization of bioplastics produced from mixture of 2% of chitosan, 0.5% of carboxymthyl cellulose, and 0.5% of glycerol with the volume ratio of chitosan: CMC is 1:0,1. The experimental design used was a Complete Randomized Design (RAL) with beeswax addition treatment as much as 0%, 1%, 2%, 3%, 4%, and 5%. The characteristics of bioplastics evaluated in this study include film thickness, moisture content, density, solubility, tensile strength, elongation, WTVR and functional groups analysis. The addition of beeswax has a non-standard effect on the parameters of solubility, tensile strength, and has an effect that is still according to standards on the parameters of thickness, density, and elongation.

Keywords: bioplastics, beeswax, chitosan, carboxymthyl cellulose, characterics