INTISARI

PEMBUATAN DAN KARAKTERISASI LAPISAN TIPIS POLIVINIL ALKOHOL (PVA) /KITOSAN:TITANIUM DIOKSIDA (TiO_2) DALAM POTENSINYA SEBAGAI PENGEMAS MAKANAN

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Lapisan PVA/kitosan:TiO_2 telah berhasil dipreparasi dengan metode *drop casting*. Preparasi lapisan dilakukan dengan mencampurkan larutan polivinil alkohol (PVA), kitosan dan TiO_2. Campuran larutan dituangkan ke dalam cawan petri sehingga menghasilkan lapisan tipis. Pada penelitian ini dikaji pengaruh penambahan massa kitosan, TiO_2 dan gliserol terhadap sifat mekanik, sifat optik, indeks pengembangan dan potensi lapisan tipis sebagai pengemas makanan. Lapisan tipis dikarakterisasi menggunakan spektrofotometer UV-Vis, *Scanning Electron Microscopy* (SEM), *Fourier Transform Infrared* (FTIR), mikrometer dan *Universal Testing Machine* (UTM). Hasil penelitian menunjukan bahwa penambahan rasio massa kitosan dapat meningkatkan nilai kuat tarik, absorbansi dan ketebalan. Namun penambahan rasio massa kitosan dapat menurunkan transmitansi, regangan dan nilai indeks pengembangan lapisan. Penambahan gliserol pada lapisan dapat meningkatkan regangan, absorbansi, ketebalan dan indeks pengembangan lapisan. Namun penambahan gliserol menurunkan nilai kuat tarik dan transimtansi. Penelitian ini menunjukan pengaruh penambahan TiO_2 pada lapisan yang dapat meningkatkan nilai kuat tarik. Berdasarkan uji potensi pengemas makanan pada brokoli terbukti bahwa lapisan PVA/kitosan rasio massa 80/20 dengan penambahan TiO_2 dan gliserol mempunyai potensi digunakan sebagai pengemas makanan karena mampu memperpanjang umur simpan brokoli.

Kata kunci : PVA, kitosan, TiO_2, gliserol, *drop casting*

ABSTRACT

FABRICATION AND CHARACTERIZATION OF POLYVINYL ALCOHOL (PVA)/CHITOSAN:TITANIUM DIOKSIDA (TiO$_2$) *WITH ADDITION PLASTICIZER AND IN ITS PROSPECT AS FOOD PACKAGING*

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PVA/chitosan:TiO_2 film have been successfully prepared by drop casting method. Film preparation was carried out by mixing a solution of polyvinyl alcohol (PVA), chitosan and TiO_2. The solution mixture was poured into a petri dish so as to produce films. In this research, the effect of addition mass chitosan, TiO_2 and glycerol to mechanical properties, optical properties, swelling index and the potential of films as food packaging was studied. Films were characterized using UV-Vis spectrophotometer, Scanning Electron Microscopy (SEM), Fourier Transform Infrared (FTIR), micrometer and Universal Testing Machine (UTM). The results showed that the addition of the mass ratio of chitosan can increase the value of tensile strength, absorbance and thickness. However, the addition of the mass ratio of chitosan can reduce the transmittance, strain and the value of the films swelling index. The addition of glycerol to the coating can increase the strain, absorbance, thickness and swelling index of films. However, the addition of glycerol decreased the tensile strength and transimtance values. This study shows the effect of adding TiO_2 to the films that can increase the tensile strength value. Based on the potential food packaging test on broccoli, it was show that the 80/20 mass ratio PVA/chitosan films with the addition of TiO_2 and glycerol has the potential to be used as food packaging because it can extend the shelf life of broccoli.

Keyword : PVA, chitosan, TiO_2, glycerol, drop casting