

INTISARI

Penelitian ini bertujuan untuk mendapatkan formula komposit kitosan/minyak sereh (*Cymbopogon citrates* Stapf.) sebagai penjera peneluran lalat buah belimbing (*Bactrocera carambolae* Drew & Hancock). Minyak sereh diekstrak menggunakan metode destilasi uap dan hasil uji GC-MS menunjukkan kandungan senyawa terbesar yaitu Geranial 38,3%, Sital 31,28% dan Juniper camfer 6,82%. Pembuatan film komposit kitosan/minyak sereh dengan variasi komposit kitosan/minyak sereh 0,5/0,1%; 0,5/0,25%; 1,0/0,1%; dan 1/0,25% masing-masing dengan cara melarutkan 0,05; 0,05; 0,1 dan 0,1 g kitosan ditambahkan 0,01; 0,025; 0,01 dan 0,025 mL minyak sereh dan 0,2 mL Tween 80 dalam asam asetat 0,1% hingga volumenya menjadi 10 mL. Kemudian larutan dituang kedalam cawan petri berdiameter 9 cm selama 24 jam untuk dibuat film. Karakterisasi film berupa karakteristik sifat mekanik film meliputi ketebalan, kuat tarik dan elongasi dimana semakin tinggi konsentrasi kitosan maka ketebalan dan kuat tarik semakin besar. Film dianalisis gugus fungsi menggunakan FTIR (*Fourier Transform Infra Red*) dan analisis morfologi permukaan dengan SEM (*Scanning Electron Microscope*). Pengujian penjera peneluran dengan cara disemprotkan pada permukaan kulit buah jambu biji merah. Film komposit kitosan minyak sereh dengan nilai kuat tarik 33,02 Mpa dan nilai elongasi 3,99% merupakan film kitosan dengan sifat mekanik terbaik diperoleh dari larutan komposit kitosan/minyak sereh 1,0/0,25%. Hasil uji deterensi, terhadap film komposit kitosan/minyak sereh yang diketahui bersifat repelen terhadap lalat buah belimbing (*Bactrocera carambolae* Drew & Hancock) adalah 1,0/0,25% dengan nilai ER sebesar 44,99%.

Kata Kunci: film komposit/kitosan minyak sereh, deterensi, repelen, lalat buah belimbing

ABSTRACT

This research was aimed at finding the formulation of chitosan/lemongrass essential oil (*Cymbopogon citrates* Stapf.) composite as an oviposition deterrent of carambola flies (*Bactrocera carambolae* Drew & Hancock). The lemongrass essential oil was extracted through evaporation distillation in which the result of GC-MS test showed that the biggest compound content was 38,3% Geranial, 31,28 % Citral and 6,82% Juniper camphor. The production of the chitosan/lemongrass essential oil composite films with the variations of 0,5/0,1%, 0,5/0,25%, 1,0/0,1%, and 1,0/0,25% was done by dissolving 0,05; 0,05; 0,1 and 0,1 gram of chitosan with 0,01; 0,025; 0,01 and 0,025 mL of lemongrass essential oil and 0,2 mL Tween 80 in acetic acid until the solution volume was 10 mL. Then the solution was poured into a petri dish which the diameter was 9 cm for 24 hours to make a film. The film measurements were mechanical characteristics such as thickness, tensile strength, and elongation. The higher chitosan concentration the bigger values of thickness and tensile strength will be. The functional groups of the films were analyzed by FTIR (Fourier Transform Infra Red) while the surface morphologies were analyzed by SEM (Scanning Electron Microscope). The solution was sprayed to the red guava skin surface. The chitosan / lemongrass oil composite film with the tensile strength value of 33,02 Mpa and elongation value of 3,99% was regarded as the film with the best mechanical characteristics. It was obtained from the solution of 1,0/0,25% chitosan / lemongrass essential oil composite. The result of the deterrence test shows that the concentration combination of the chitosan/lemongrass essential oil composite films which become repellent to Carambola flies (*Bactrocera carambolae* Drew & Hancock) is 1,0/0,25% with the ER value of 44,99%.

Keywords: chitosan/lemongrass essential oil composite films, deterrence, repellent, *Bactrocera carambolae*