

INTISARI

Cabai rawit mudah mengalami penurunan mutu selama penyimpanan, salah satunya akibat kehilangan air dan pertumbuhan mikroorganisme. Penelitian ini bertujuan untuk mengetahui pengaruh variasi *beeswax* dan *Cinnamon essential oil* terhadap karakteristik film *beeswax*/kitosan serta mengetahui pengaruh aplikasinya sebagai coating pada kardus terhadap mutu cabai rawit. Film dibuat menggunakan *beeswax* 30%, 50%, dan 70% dari berat kitosan, dengan dan tanpa penambahan minyak kayu manis 1,5%. Karakterisasi meliputi sifat fisik, *water-based properties*, sifat termal, morfologi, dan aktivitas antibakteri. Formulasi terpilih kemudian diaplikasikan pada kardus dan digunakan untuk mengemas cabai rawit selama 20 hari penyimpanan pada suhu 4°C dan RH $\geq$ 90%. Hasil penelitian menunjukkan bahwa peningkatan konsentrasi *beeswax* menurunkan *swelling* dan WVTR serta meningkatkan WCA. Formulasi C70 memiliki nilai *swelling* 5,70%, WCA 48,05°, dan WVTR 553,71 g/m².hari. Penambahan minyak kayu manis meningkatkan aktivitas antibakteri terhadap *S. aureus* dan *E. coli*. Coating *beeswax*/kitosan dengan minyak kayu manis menghasilkan ketebalan 85,06 $\pm$ 3,27 μ m dan menurunkan WVTR kardus dari 2740,12 $\pm$ 31,98 menjadi 667,96 $\pm$ 46,25 g/m².hari. Selama penyimpanan, perlakuan KC menghasilkan TPC hari ke-20 sebesar 5,04 log CFU/g dibandingkan 7,37 log CFU/g pada kontrol. Perlakuan KC juga menghasilkan kerusakan buah terendah sebesar 2,48%. Hasil tersebut menunjukkan bahwa coating *beeswax*/kitosan dengan minyak kayu manis dapat digunakan untuk memperbaiki sifat *barrier* kardus dan membantu mempertahankan mutu cabai rawit selama penyimpanan.

Kata kunci: *beeswax*, kitosan, minyak kayu manis, *coating*, kardus, cabai rawit

ABSTRACT

Chili peppers deteriorate in quality during storage, partly due to water loss and microbial growth. This study aims to determine how variations in *beeswax* and *Cinnamon essential oil* affect the characteristics of *beeswax*/chitosan films and to assess the effect of applying these films as a coating on cardboard on the quality of bird's eye chili peppers. Films were prepared with 30%, 50%, and 70% *beeswax* by weight of chitosan, with or without 1.5% *Cinnamon essential oil*. Characterization included physical, water-based, and thermal properties, morphology, and antibacterial activity. The selected formulations were then applied to cardboard and used to package bird's eye chili peppers for 20 days at 4°C and RH $\geq$ 90%. The results showed that increasing the *beeswax* concentration reduced swelling and WVTR while increasing WCA. The C70 formulation had a swelling value of 5.70%, a WCA of 48.05°, and a WVTR of 553.71 g/m²·day. Adding cinnamon oil enhanced antibacterial activity against *S. aureus* and *E. coli*. Coating the *beeswax*/chitosan with cinnamon oil resulted in a thickness of 85.06 ± 3.27 µm and reduced the cardboard's WVTR from 2740.12 ± 31.98 to 667.96 ± 46.25 g/m²·day. During storage, the KC treatment resulted in a TPC of 5.04 log CFU/g on day 20, compared with 7.37 log CFU/g in the control. The KC treatment also produced the lowest fruit damage (2.48%). These results indicate that a *beeswax*/chitosan coating with cinnamon oil can improve cardboard barrier properties and help maintain cayenne pepper quality during storage.

Keywords: beeswax, chitosan, cinnamon oil, coating, cardboard, chili peppers.