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Characterization and preservation performance of active polyethylene films containing rosemary and cinnamon essential oils for Pacific white shrimp packaging



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1 **Characterization and preservation performance of active polyethylene**  
2 **films containing rosemary and cinnamon essential oils for Pacific white**  
3 **shrimp packaging**

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14 **Abstract**

15 A new active packaging film of bilayer structure based on low-density polyethylene (LDPE)  
16 incorporated with rosemary essential oil (REO) and cinnamon essential oil (CEO) in the inner  
17 layer has been designed and developed for preserving shrimp. Six types of active packaging  
18 films [REO (1% w/w), REO (2% w/w), CEO (1% w/w), CEO (2% w/w), REO (1% w/w) +  
19 CEO (1% w/w) and control (film without EO)] were designed by blown film extrusion method.  
20 Tensile strength (TS), water vapor transmission rate (WVTR), oxygen transmission rate (OTR),  
21 thermogravimetric analysis (TGA), and microstructure of films were investigated to justify the  
22 effect of EOs on the film physical functionality. The outcomes of scanning electron microscopy  
23 (SEM) analysis revealed that the surface of active films became relatively rougher by the

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