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NON-CHEMICAL TREATMENTS FOR POTENTIAL DISINFESTATION OF TWO MAJOR ARTHROPOD PESTS OF SOUTHERN DRY-CURED HAMS

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ABSTRACT

We explored the feasibility of controlled atmospheres (CA) for controlling arthropod pests infesting dried-cured ham facilities in the USA using low oxygen (O₂), high carbon dioxide (CO₂) and Ozone (O₃). Studies were also conducted on Sessional treatment of food-grade materials as deterrent to ham mite infestation. Results showed that both low oxygen and higher CO₂ levels required longer exposure (144h) to kill 100% of all stages of red legged ham beetle, *Necrobia rufipes* DeGeer (Coleoptera: Cleridae) and ham mite *Tyrophagus putrescentiae* Schrank (Astigmata: Acaridae) at 23°C. In addition, both these trials had no any significant mortality effect against the ham beetle and ham mites especially at short exposures ranging from 12 to 48 h. Ham beetles showed more tolerant to higher CO₂ (75.08%) and low pressure (25mmHg) than ham mites. Our CA trials also showed that the egg stages of both species were usually found to be more tolerant than other stages tested. The ozone trials were shown more promising among the all CA executed in controlling both the insect pests. The results suggest that O₃ has potential in controlling ham beetle and ham mites particularly with higher concentration (≈155 ppm) at 24h exposure. Food-grade coatings showed such as certain oils and glycols showed great promise in both preventing disinfestation of ham and in repelling mites from treated hams.