

## **Acaricidal Activity of Aldehydes and Component Isolated from *Prunus persica* (L.) Batsch Seed against Stored Food Mite, *Tyrophagus putrescentiae* (Acari: Acaridae)**

Ju-Hyun Jeon, Hoi-Seon Lee

Faculty of Biotechnology and Research Center for Industrial Development of Biofood Materials, College of Agriculture & Life Science, Chonbuk National University, Chonju 561-756, Korea  
TEL: +82-63-270-2544, FAX: +82-63-270-2550

Mite-control activity of the essential oil obtained from *Prunus persica* seed against *Tyrophagus putrescentiae* was examined using impregnated fabric disk bioassay. Purification of the biologically-active compound from *P. persica* seed oil was done by using silica gel chromatography and high performance liquid chromatography. The structure of active compound was identified by  $^1\text{H-NMR}$ ,  $^{13}\text{C-NMR}$  and mass spectrum as benzaldehyde (benzenecarbal C<sub>7</sub>H<sub>6</sub>O). The mite-control activity of benzaldehyde was compared with that of the widely used synthetic acaricide, such as benzyl benzoate and *N,N*-diethyl-*m*-toluamide (DEET). Based on LD<sub>50</sub> value, the mite-control activity was more pronounced in benzaldehyde (4.23  $\mu\text{g}/\text{cm}^2$ ) than benzylbenzoate (9.75  $\mu\text{g}/\text{cm}^2$ ) and DEET (16.26  $\mu\text{g}/\text{cm}^2$ ) against *T. putrescentiae*. Except for benzaldehyde, the mite-control activities of 9 aldehydes, butylaldehyde, cinnamaldehyde, capric aldehyde, 2,4-, 2,5-, 3,4-dihydroxybenzaldehyde, *p*-hydroxybenzaldehyde, salicylaldehyde and phthalaldehyde against *T. putrescentiae* were investigated. In case of 3 aldehydes (cinnamaldehyde, salicylaldehyde, and phthalaldehyde), the potent activities were investigated, especially, the morphological change was observed in the color of the mites dead bodies. Based on this data, the naturally occurring *P. persica* seed-derived benzaldehyde could be of practical use as *T. putrescentiae* control fumigants and some aldehydes (cinnamaldehyde, salicylaldehyde, and phthalaldehyde) may introduce a new concept called the indicator in an acaricide.

### Reference

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