

Insecticidal Activity of Pulegone Identified in Pennyroyal Essential Oil against Three Coleopteran Stored-product Insects

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The insecticidal activity of materials derived from pennyroyal essential oil against adults of *Sitophilus oryzae* (L.) and *Lasioderma serricorne* (F.), and *Callosobruchus chinensis* (L.) was examined using direct contact application and fumigation methods. The biologically active constituent of the oil was identified as pulegone by spectroscopic analyses. Responses varied with dose, exposure time, and insect species. In a test with *S. oryzae* adults, pulegone at 0.046 mg/cm² gave 64 and 92 % mortality 1 and 2 days at the treatment, respectively. The insecticidal activity of the compound was significantly decreased at 0.018 mg/cm². Against *L. serricorne* adults, pulegone caused 88 % mortality at 0.14 mg/cm² but 42 % mortality at 0.074 mg/cm². Against *C. chinensis* adults, pulegone exhibited 100 % mortality at 0.067 mg/cm². In a fumigation test with three insect species, pulegone was much more effective in closed containers than in open ones, indicating that the mode of delivery of the compound was largely due to action in the vapor phase, as a fumigant. Naturally occurring pennyroyal oil-derived materials merit further study as potential insect control agents.