Abstract

Stored products pests are the important constraint on agricultural crops by annual damage of 10-40%. Botanical pesticides have received a great deal of attention because of their favorable ecotoxicological properties, e.g. low human toxicity, rapid degradation, and reduced environmental impact. These properties make them suitable insecticides for organic agriculture. In this study, contact toxicity and repellency of ethanol and hexane extracts of *Taxus baccata*, *Artemisia absinthium*, *Cardaria draba* and *Heliotropium europaeum* were determined on *Sitophilus oryzae* and *oryzaephilus surinamensis* adults based on complete randomized design at 27±1ºC, 65±5% of relative humidity (RH) in the dark. In plants *T. baccata*, *C. draba* and *H. europaeum* hexane extract caused upper contact toxicity compared with ethanol extract, but in *A. absinthium* ethanol extract revealed upper contact toxicity. In ethanol extracts, *A. absinthium*, *C. draba*, *T. baccata* and *H. europaeum* showed the highest toxicity on the both insects tested, respectively. However, in hexane extracts, *C. draba*, *A. absinthium*, *H. europaeum* and *T. baccata* showed the highest mortality on the both insects tested, respectively. The ethanol extract of *A. absinthium* revealed the highest contact toxicity with LC_{50} level of 44.5 and 43.4 mg/cm^2 for *S. oryzae* and *O. surinamensis*, respectively. On the other hand, the ethanol extract of *H. europaeum* revealed the lowest contact toxicity with LC_{50} level of 1173.2 and 1090.2 mg/cm^2 for *S. oryzae* and *O. surinamensis*, respectively. In all plants tested, the hexane extracts had higher repellency effect compared with ethanol extracts. Our results showed the hexane extract of *C. draba* had the strongest repellency with more than 80% repellency on the both insects tested in concentration of 6 mg/ml. But Ethanol extract of *T. baccata* showed the lowest repellency with more than 70% repellency on the both insects tested in concentration of 111 mg/ml.

Keywords: *Taxus baccata*, *Artemisia absinthium*, *Cardaria draba*, *Heliotropium europaeum*, insecticide, repellency, stored pest

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Insecticidal and repellency effect of extracts of Taxus baccata, Artemisia absinthium, Cardaria draba and Heliotropium europaeum plant extracts on Oryzaephilus surinamensis and Sitophilus oryzae

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