Insecticidal and repellency effect of essentialoils of some medicinal plants on *Tribolium castaneum* and *Callosobruchus maculatus*

Abstract

Today with problems resulting from use of chemical pesticides tend to use this material has been reduced. Recently research on the use of essential oils and plant extracts as alternative synthetic chemical pesticides has been highly regarded. Plant Insecticides, including essential oils are suitable substitute for pesticides that insects are resistant to them. The fumigant toxicity and repellency effects of essential oils of three plant species, *ziziphora clinopodioides*, *Vitex agnus-castum* and *Teucrium polium* were investigated against two stored product insect species *Tibolium castaneum* and *Callosobruchus maculatus* F. at 27 ± 1.C; 65 ± 5 % R.H under dark condition. The essential oil were prepared by water distillation method. The mortality of 1-7 days old adults of *T. castaneum* and *C. maculatus* were investigated at exposure time for 3 to 24 h. the highest concentration (416.16 µl/l air) of *Z. clinopodioides*, *V. agnus-castum* and *T. polium* essential oil caused 82.5; 65 and 80 % mortality of. *C. maculatus* and 85, 40 and 27.5 mortality of *T. castaneum* after 12 h exposure time, respectively. *C. maculatus* was significantly more susceptible than *T. castaneum*. Values of 50% lethal dose of *Z. clinopodioides*, *V. agnus-castum* and *T. polium* essential oil on *T. castaneum* and *C. maculatus* were 87.676, 186.150, 359.492 µl/l and 0.693, 39.59, 150.93 µl/l respectively. The essential oil have significantly repelled insect. *Z. clinopodioides* essential oil were more repellent to *T. castaneum* (81.3 %) and *C. maculatus* (75.3 %) than other essential oil. The composition of essential oil was analyzed by gas chromatography mass spectrophotometry (GC mass) method. The predominant components in the in the *Z. clinopodioides* Pulegone (80%), Thymol (1.4%), Phenol (1.4%) and Germacrene-d (10%), *V. agnus-castum* oil contained Vividiflorol (40.8%), Caryophyllene oxid (20.5%), Nephtalene (18.5%) and (Alph-tenpinolene17.5%) and *T. polium* oil contained Globolol (40.5%), Longirerbenone (29%), Alph-cadinol (15.5%) and Vividiflorol (7.2%).

Keywords: *ziziphora clinopodioides*, *Vitex agnus-castum*, *Teucrium polium,* essential oils, fumigant toxicity

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