

Identification of physiologically active volatile compounds in dried apple, dried apricot and dried almonds on *Plodia interpunctella* (HÜBNER) (Lepidoptera: Pyralidae)

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Monitoring of insects by the use of attractant semiochemicals is becoming more and more interesting since semiochemicals can be used against many different insect species. *Plodia interpunctella*, the major pest of packaged food in transit and storage, infests goods such as grain and grain products, nuts, seeds, chocolate, dry pet food and dried fruits. Dried apricot, dried apple and dried almonds were used in the present study in order to identify attractant odorants which could be used as lure in traps for the monitoring of this moth. Firstly, volatile compounds of these three products were collected by headspace-solid phase microextraction and identified by gas chromatography/mass spectrometry (GC-MS). Secondly, some volatiles among those obtained from chemical analysis were chosen based on literature observations. The electrophysiological activity was tested by electroantennographic measurements (EAG) at a standard concentration of 1 µg/µl. Thirdly, to evaluate the sensitivity of *P. interpunctella* antenna to the

compounds, a dose-response test was carried out. Of the test compounds which, at the standard concentration (1 µg/µl) elicited significant EAG responses, different concentrations ranging from 10⁻³ to 100 µg/µl were puffed to the antenna in further EAG tests. The results revealed that, benzaldehyde, (*E*)-2-octenal and (*Z*)-2-heptenal consistently elicited EAG responses in male antennae. The same observation was made with (*E*)-2-octenal and 1-heptanol in female antennae. Limonene, however, elicited a rather low EAG response in both sexes at all tested concentrations. In general, the response increased with increasing concentration of the volatile. The highest increase in response occurred in both sexes between 1 and 10 µg/µl for 4 compounds tested. These findings indicate the evidence of a behavioral activity, attractive or repellent, induced by each tested compound on *P. interpunctella*. The respective activity will be determined through behavioral bioassays of each compound.