Volatile organic compounds mediating orientation of *Callosobrucus maculatus* (Fabricius, 1775) (Coleoptera: Chrysomelidae: Bruchinae) towards dried green peas

Ndomo-Moualeu, A.F.*[1], Weissbecker, B.[2], Ulrichs, C.[3], Adler, C.#[1]
[1]Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Institute for Ecochemistry, Plant Analysis and Stored Product Protection, Königin-Luise-Str. 19, D-14195 Berlin, Germany
[2]Department of Forest Zoology and Forest Conservation, Georg-August-University of Göttingen, 37077 Germany
[3]Division of Urban Plant Ecophysiology, Faculty of Life Science, Humboldt-Universität zu Berlin, Lentzallee 55/57, 14195 Berlin, Germany

*Corresponding author, Email: agnes.ndomo@jki.bund.de
#Presenting author, Email: cornel.adler@jki.bund.de

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Abstract

Cowpea weevil, *Callosobruchus maculatus* is a stored product insect of Africa and Asia that presently ranges throughout the tropical and the subtropical world. It infests stored legume seeds including peas (*Pisum sativum* L.). The determination of attractive compounds in dried green peas could be of a great interest for the development of an attractive lure for the monitoring or control of *C. maculatus*. The goal of this study is to investigate the perception of volatile organic compounds emanating from dried peas by *C. maculatus* and the behavior induced by these compounds. The volatile organic compounds from the headspace of dried peas were actively sampled by closed-loop-stripping analysis method. They were then analyzed by gas chromatography coupled to two detectors, a mass spectrometry for the determination of volatile compounds and an electroantennograph for the identification of volatile compounds perceived by adult male and female *C. maculatus*. In addition, the behavioral effects of mixtures (binary, tertiary, etc.) of electrophysiologically active compounds in the beetle were evaluated in a Y-tube olfactometer. The results of the present study will be presented and discussed based on literature data.

Keywords: dried green peas, volatile organic compounds, GC-MS/EAD, *Callosobruchus maculatus*, behavior