

Conference of the IOBC-wprs (OILB-srop)

Working Group on
“Integrated Protection of Stored Products”

Ljubljana, Slovenia
3-5 July 2017



BOOK OF ABSTRACTS

Ljubljana, 2017

Electrophysiological and behavioral studies to test attractants semiochemicals for *Stegobium paniceum* L. (Coleoptera: Anobiidae)

Salvatore Guarino^{1,3*}, Ezio Peri¹, Stefano Colazza¹, Mokhtar Abdulsattar Arif¹, Maurizio Sajeva², Giuseppe Braghieri³, Nadia Zini³, Marco Caimi³, Francesca Tavella², Pietro Zito^{2,3}

¹Dipartimento di Scienze Agrarie e Forestali, Università degli Studi di Palermo, Viale delle Scienze, Ed. 5 - 90128, Palermo, Italy

²Dipartimento di Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche, Università degli Studi di Palermo, Via Archirafi 18, 90123, Palermo, Italy

³GEA Srl Via Enrico Fermi 10, 20019, Settimo Milanese (MI), Italy

*Corresponding author e-mail: salvatore.guarino@unipa.it

Abstract: *Stegobium paniceum* (L.) (Coleoptera: Anobiidae), the drugstore beetle, is one of the major pests for a wide variety of dry and durable stored agricultural products. Females of *S. paniceum* produce a sex pheromone, (2S,3R,1'R)-Stegobinone, that attracts males. Nevertheless, trapping experiments using the synthetic sex pheromone in many cases showed low levels of captures, perhaps because of isomerization of the pheromone compound in ambient conditions. To date, very few brands of commercially *S. paniceum* pheromone are available in the market. In this study, we evaluated in electrophysiological (EAG) and behavioral bioassays (two-choice olfactometer), the response of *S. paniceum* male and female to racemic mixtures of the sexual pheromone and its isomers. In particular were tested: 1) racemate A, (2S,3R,1'R)-Stegobinone plus the form 2R,3S,1'S; 2) racemate B, (2R,3S,1'S)-Stegobinone plus the form 2R,3S,1'R. The racemates were tested alone or in combination. Furthermore, a headspace collection of the colony (insects and substrate) was tested in olfactometer as candidate attractant to improve trap captures. EAG results showed that both racemic mixtures tested elicit dose-dependent responses in males but not in females. Olfactometer bioassays evidenced attraction response of males to racemate A tested alone or in combination with B. However, the racemate B alone elicited repellency in both sexes. Finally, the colony headspace extract elicited attraction in both sexes of *S. paniceum*.

Keywords: drugstore beetle, stegobinone, olfactometer, EAG, headspace collection, sex pheromone