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Electrophysiological and behavioral studies in the evaluation of semiochemical attractants for *Stegobium paniceum* L. (Coleoptera: Anobiidae)

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Stegobium paniceum (L.) (Coleoptera: Anobiidae), also named drugstore beetle, is one of the major pests for a wide variety of dry and durable stored products. Females of this species produce a sex pheromone, (2*S*,3*R*,1'*R*)-Stegobinone that attracts males and elicit precopulatory searching behaviour. However, (2*S*,3*R*,1'*R*)-Stegobinone has eight possible isomers which are produced during its chemical synthesis and one of them inhibiting the pheromone activity, the (2*S*,3*R*,1'*S*)-Stegobinone form. In addition, the high costs of synthesis of (2*S*,3*R*,1'*R*)-Stegobinone suggest that alternative volatile compounds (e.g. those from food or oviposition sources) might be considered as attractant for traps. In this study the adult responses to racemic mixtures, containing the sex pheromone and/or its isomers, and to an elution from a dynamic headspace collection of a *S. paniceum* colony were assessed in electrophysiological (EAG) and behavioral bioassays (two-choice olfactometer). Racemic mixtures were: (2*S*,3*R*,1'*R*)-Stegobinone plus the form 2*R*,3*S*,1'*S* (mixture A) and (2*S*,3*R*,1'*S*)-Stegobinone plus the form 2*R*,3*S*,1'*R* (mixture B). The mixtures were tested alone or in combination. EAG results showed that both racemic mixtures elicit dose-dependent responses in males but not in females. Olfactometer bioassays showed attraction response of males to mixture A tested alone or in combination with B, while females were not attracted. However, mixture B alone elicited repellency in both sexes. Finally, the elution from the headspace elicited attraction in both sexes of *S. paniceum*. The possibility to use racemic mixture A in trap synergized by using volatiles produced from feeding and oviposition sites of this species is discussed.

