Title The potential of stored-product beetle aggregation pheromones as cross-species attractants: an electroantennogram and behavioural investigation.

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**Abstract**

Aggregation pheromones have been investigated as a source for a multispecies lure for *Oryzaephilus surinamensis*, *Cryptolestes ferrugineus* and *Sitophilus granarius*, using adult beetles that were generally 0- to 2-weeks old. *S. granarius* showed no significant electroantennogram (EAG) response to four macrolide lactones and R,S-1-octen-3-ol, at a single dose of 10 micro g, indicating that this species is unable to perceive these compounds at the concentration tested. All three species showed an EAG response to racemic sitophinone, although the perception threshold ranged from 10 micro g for *S. granarius* to 1000 micro g for *O. surinamensis*. The behavioural effect of racemic sitophinone (500 ng for *S. granarius* and 50 micro g for *O. surinamensis* and *C. ferrugineus*) and R,S-1-octen-3-ol (10 micro g) was investigated for all three species in pitfall bioassays. As expected, there was significant attraction of *S. granarius* to racemic sitophinone compared to the control but no response by this species toR,S-1-octen-3-ol. Neither *O. surinamensis* nor *C. ferrugineus* was attracted to racemic sitophinone or R,S-1-octen-3-ol in pitfall bioassays. An investigation of the effect of insect age on the response to R,S-1-octen-3-ol showed that 3- to 5-week-old *O. surinamensis* had a lower threshold for behavioural response than 0- to 2-week-old adults, but there was no significant difference in response to 1, 10 or 100 ng R,S-1-octen-3-ol compared to the control for *C. ferrugineus* for either 0- to 2- or 4- to 6-week-old adults. The effect of R,S-1-octen-3-ol on *O. surinamensis* and *C. ferrugineus* requires further investigation to determine the reasons for the differences in response shown by different research groups. It is concluded that it is not possible to produce a multispecies lure for these three species based on racemic sitophinone and R,S-1-octen-3-ol.