

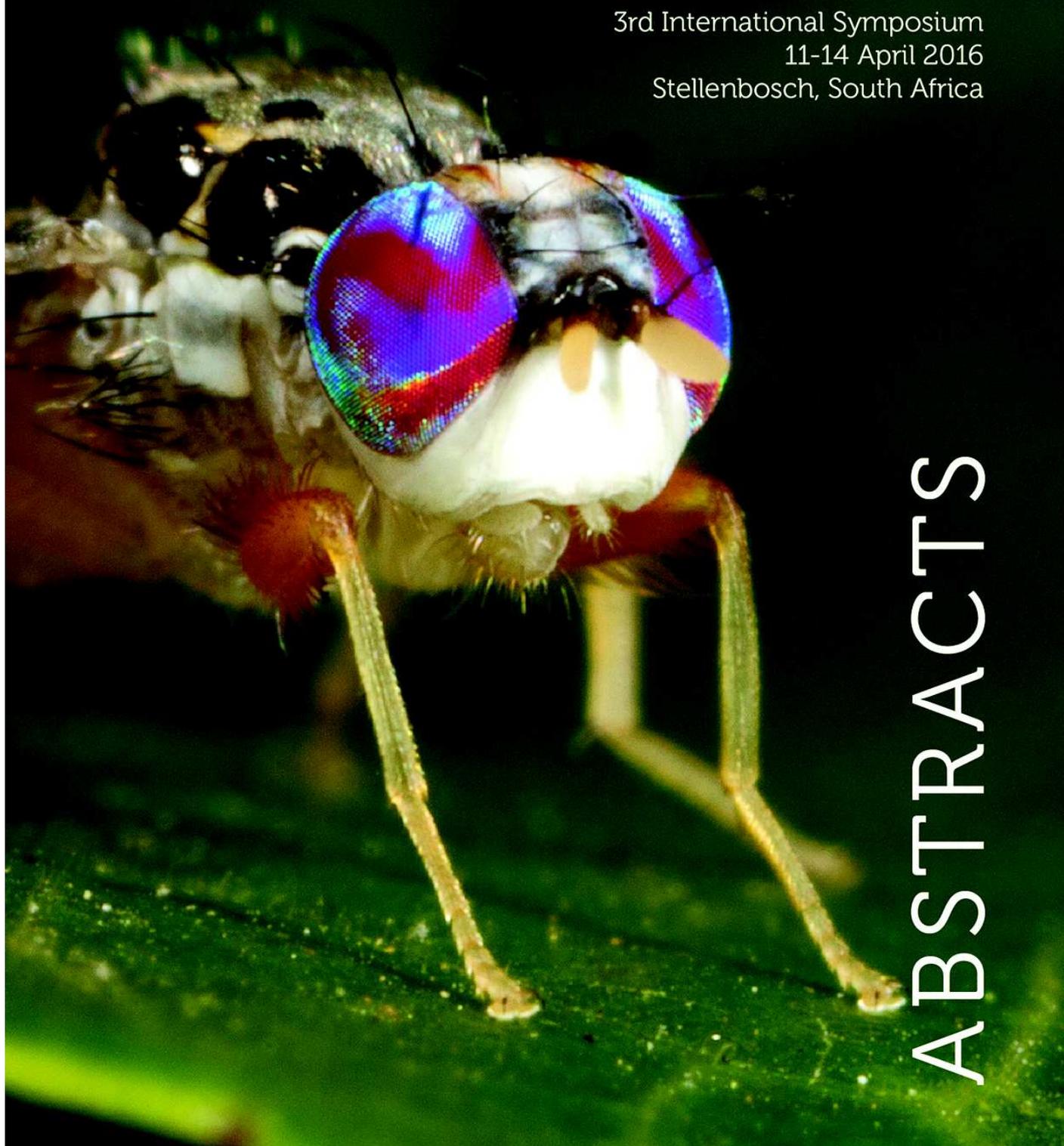


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ABSTRACTS

## FACTORS INFLUENCING THE MATING SUCCESS OF *BACTROCERA ZONATA* (SAUNDERS) (DIPTERA: TEPHRITIDAE) MALES IN AN SIT PROGRAMME

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*Bactrocera zonata* (Saunders) is a pest of economic importance introduced into Reunion Island in 1991. The sterile insect technique (SIT) has been successfully used against other tephritid pests, and can potentially be used in the control of *B. zonata*. However, mass rearing procedures and irradiation sterilization of males usually reduces sexual competitiveness of males in SIT programmes. The use of semiochemical substances or appropriate adult diets has previously been used to successfully reduce these negative effects in some tephritid species. Laboratory and external cage studies with reared *B. zonata* revealed that (i) attraction of males to the parapheromone methyl eugenol (ME) increased with age and ceased at the end of sexual maturity; and (ii) ME accelerated sexual maturity of *B. zonata* males. For example in external cage: The treated males coupled themselves more than the untreated. The flies treated with ME accounted for 74.8 % of the couplings observed against 25.2 % the control. In laboratory also, the full number of couples formed for the treated males accounted for 65.8 % against 34.2 % for the untreated. Moreover, our results showed that the mating behavior of sterile, mature *B. zonata* males is improved when protein is added in comparison to males fed sugar only. All couplings were done with males fed using a complete diet. In laboratory, all the formed couples (44 couples) correspond to males nourished with the complete mode. Survival and successful mating of sterile *B. zonata* adults depends to a great extent on the quality of their diet. Our results contribute to the successful development of an SIT programme against *B. zonata*.

*Keywords: mating behaviour, Bactrocera zonata, sterile insect technique, methyl eugenol, protein supplement*