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Protein baits, volatile compounds and irradiation influence expression profiling of odorant-binding protein genes in *Bactrocera dorsalis* (Diptera: Tephritidae)

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Chemical communication among insects is based on odorant-binding proteins (OBPs). Regulatory mechanism of OBPs in the perception of volatiles and host chemicals remain unclear. In present study, *Bactrocera dorsalis* OBPs (BdorOBPs) have been evaluated in response to different attractive protein baits, brewer's yeast volatile compounds and irradiation. Based on our previous study, we analyzed the expression of 10 OBP genes expression in the antennae of *B. dorsalis* during three mature life-stages i.e. pre-mating, post-mating and post-oviposition. *B. dorsalis* (Hendel) is one of the most economically important damaging fruit pests. Selected BdorOBP genes were found with one conserved PBP-GOBP except *OBP8* that contained two conserved domains. An un-rooted phylogenetic tree was constructed to show the relationships among the 10 BdorOBPs to other insects having same OBP family. We recorded significantly different transcriptome expression in each OBP genes at each stage in response to treatments. *OBP2* was significantly expressed in response to baits at each developmental stage while *OBP2, OBP5* and *OBP1* were largely expressed in response to combined volatiles treatments at all tested stages. *OBP3, OBP5* and *OBP10* showed high expression in response to irradiation at all tested stages. We infer that our treatments have significant influence on the transcriptome of OBP genes which may act in olfactory perception.

Biography

Atif Idrees is currently doing his PhD in Agriculture Entomology and Pests Management at Fujian Agriculture and Forestry University, China. He has done research in physiology, entomology and ecology. His most recent publication is 'Genetic resistance in chickpea against Ascochyta blight: Historical efforts and recent accomplishments'.

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