Odorant-binding protein expression in *Rhodnius prolixus*

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INTRODUCTION: Odorant binding proteins (OBPs) are small soluble proteins responsible for coordinating the presentation of odor molecules to specific receptors in olfactory sensory neurons, evoking a response behavior. Characterization of OBPs could provide clues for the identification of potential insect repellents and attractants, useful for human protection and control of disease vectors.
OBJETIVE: The main goal of this study was to identify specific OBPs in male (MA) and female (FA) antennae from *Rhodnius prolixus*.
MATERIALS AND METHODS: Expression of 17 OBPs selected from a previous proteomic study was analyzed in adult tissues (antennae, proboscides, legs and heads) by semi-quantitative PCR. Total RNA from three biological replicates of each tissue was extracted using TRIzol. cDNA was synthesized using High-Capacity cDNA Reverse Transcription Kit and random primers (Applied Biosystems). Semi-quantitative PCR was performed with HotStart-IT Taq DNA Polymerase (USB-Affymetrix). PCR products were carried out on a 1% agarose gel stained with GelRed (Biotium). Expression patterns of OBPs were also verified by quantitative PCR, using Step One Real-Time PCR Systems and Power SYBR Green PCR Master Mix (Applied Biosystems). RproR18S was used as reference gene and expression levels were estimated by relative quantification using the comparative Ct method ($2^{-\Delta\Delta CT}$).
RESULTS: Eleven OBPs were expressed in all tissues while six were antenna specific. *OBP1, OBP11, OBP14* and *OBP24* were highly expressed in MA and FA, suggesting they could be linked to the recognition of molecules responsible for inducing a response behavior common to both male and female. Interestingly, *OBP18* and *OBP23* were significantly expressed in MA, indicating they might be involved in the detection of male specific semiochemicals.
CONCLUSIONS: These results provide helpful information for studies regarding possible targets for behavioral interference, besides being useful for the determination of potential physiological functions of *Rhodnius* OBPs, contributing for a better understanding of its olfactory system.

Key words: Odorant binding proteins, antennae, *Rhodnius*.
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