Characterization of Chitinase Genes in *Rhodnius prolixus*

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**Introduction.** Insect chitinases participate in degradation of cuticle or peritrophic membrane during molts, digestion of fungi or control of peritrophic membrane thickness. *R. prolixus* contains 9 chitinase genes (RpCht1-9).

**Material and Methods.** RpCht1-9 were studied using sequence (multiple alignment and phylogeny) and expression analysis (semi quantitative RT-PCR).

**Results and Discussion.** RpCht1 (chitinase group II) expression is strong (actin gene as control) in larvae (L) and males (M), weak in eggs (E) and females (F). RpCht2 (group VI) expression is strong in E,L, weak in M,F. RpCht3 and RpCht7 (groups II and VIII) expression is strong in L,M,F, weak in E. RpCht5 and RpCht4 (undefined, group IV) expression is strong in all stages. RpCht6 (group I) expression is strong in E,L, not detected in M,F. RpCht8 (group V) expression is strong in L,M,F, not detected in E. RpCht9 (group III) expression is strong in L, weak in E,M,F.

RpCht1 and RPCht2 expression in 5th instar nymphs is high in anterior midgut (AM), posterior midgut (PM) and carcass (CC), moderate in salivary glands (SG), hindgut (HG), fat body (FB), not detected in hemolymph (HF). RpCht3 expression is high in CC, moderate in AM, weak in SG/HF/FB and not detected in PM/HG. RpCht4-1 (splicing variant 1) expression is high in PM/CC, moderate in SG/AM/HG/FB, weak in HF. RpCht4-2 expression is moderate in all tissues. RpCht5 expression is moderate in all tissues but FB (weak). RpCht6 expression is high in AM/PM/HG/CC, moderate in SG/FB, weak in HF. RpCht7 expression is high in PM/CC/FB, moderate in SG/AM/HG/HF. RpCht8 expression is high in all tissues. RpCht9 expression is high in AM/PM/CC/FB, moderate in SG/HG, weak in HF.

**Conclusions.** These data indicate that *R. prolixus* contains a complete set of active chitinases, corresponding to enzymes described in other hemi- and holometabolan insects.

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