PROTEOMIC ANALYSIS OF DIFFERENTIAL PROTEIN EXPRESSION ON 
RHODNIUS PROLIXUS’ DIGESTIVE TRACT

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Introduction: Rhodnius prolixus is one of the most important vectors of Chagas’ disease caused by the parasite Trypanosoma cruzi. Vector control is the principal combat method of this disease. It is inside of intestine that T. cruzi completes his life cycle to become infectious. Objectives: On this work, an analysis of differential protein expression on R. prolixus intestine was performed. Material and Methods: Differences on protein expression were analyzed by 2D-DIGE. Soluble proteins from crop and posterior midgut were extracted under four conditions: starved, 6 hours and 5 days after feeding and 5 days after infection with T. cruzi. Differences on spot intensity were analyzed using SameSpot (Nonlinear Dynamics). Quantitative PCR was used to validation of protein expression. Some sequences were selected to analyze the RNA-interference effects on the insect after blood meal. Results and discussion: DIGE comparison between starved and 5 days blood fed insects showed statistic significant differences in spot intensities of 104 and 5 spots from crop and posterior midgut, respectively. Differences between starved and 6 hours blood fed insects occurred in 37 and 51 spots from crop and posterior midgut, respectively. No differences were observed between uninfected and infected animals. The expression of 15 genes, selected to data validation, were correlated with protein expression on the DIGE experiments. Some of these genes were chosen to perform RNAi experiments: endoplasmin, translationally controlled tumor protein (TCTP) and tetratricopeptide repeat domain protein (TPR). Interference on gene expression of endoplasmin and TCTP didn’t provoked changes on blood digestion and oviposition, but reduced egg viability (90% and 70%, respectively). No effect was observed on TPR expression interference. Conclusion: These proteomic data, together with transcriptomic and genomic information, will contribute in the comprehension of the physiology of R. prolixus midgut. Acknowledgements: CNPq, CAPES e INCT-Entomologia Molecular.