Honey Protects *Drosophila melanogaster* Against Iron and Paraquat Induced Oxidative Stress-stimuli

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**INTRODUÇÃO.** Honey is a natural substance and complex mixture produced by honey bees with many medicinal effects such as antibacterial, hypoglycemic, reproductive and antioxidant effects. Studies have demonstrated that paraquat (PQ) induces selective cell death of dopaminergic neurons, and iron (Fe) excess have been found in the brains of patients of numerous neurodegenerative disorders. Fe and PQ have been widely used to induce parkinsonism in animal models, including Drosophila. The aim of this study was to evaluate the possible protective effect of honey against oxidative stress induced by Fe and PQ in *Drosophila melanogaster*. **MATERIAL E METODOS:** 20 female flies per group were exposed for 48h. The groups were: control (1% sucrose), honey (10%), 15mM Fe (in 1% sucrose), 20mM PQ (in 1% sucrose), Fe+honey and PQ+honey. Honey was obtained from local suppliers and all samples were within the parameters required by Brazilian law followed by the Codex Alimentarius Commission (CAC) and Association of Official Analytical Chemists (AOAC). The survivorship, locomotor activity (negative geotaxis) and antioxidant enzymes catalase, glutathione-s-transferase and superoxide dismutase activity were analyzed. Statistical analysis was done by One Way ANOVA followed by Duncan’s post hoc test. All experiments were repeated 3-6 times (n=3-6). **DISCUSSÃO E RESULTADOS:** When assessing flies survivorship, it was observed a substantial increase in dead flies exposed to iron (p <0.005) and paraquat (p <0.0001) when compared to control. Honey treatment blocked Fe induced mortality and partially protected against PQ induced flies death. Considering locomotor activity, Honey treatment completely reversed Fe and PQ induced decrease in negative geotaxis behavior. The activities of the antioxidant enzymes tested were not changed. **CONCLUSAO:** Our results suggest that honey has a protective effect against oxidative stimuli. More studies are needed to assess potential therapeutic properties of honey in the management of chronic diseases associated with oxidative stress.

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