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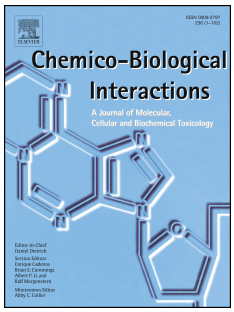

Honey protects against wings posture error and molecular changes related to mitochondrial pathways induced by hypoxia/reoxygenation in adult *Drosophila melanogaster*

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PII: S0009-2797(17)31350-9

DOI: 10.1016/j.cbi.2018.06.033

Reference: CBI 8345

To appear in: *Chemico-Biological Interactions*

Received Date: 14 December 2017

Revised Date: 7 June 2018

Accepted Date: 25 June 2018

Please cite this article as: L.C. Cruz, A. Ecker, N.R. Rodrigues, I.K. Martins, T. Posser, F.E. Maciel, M.A. Vargas, N.V. Barbosa, J.L. Franco, Honey protects against wings posture error and molecular changes related to mitochondrial pathways induced by hypoxia/reoxygenation in adult *Drosophila melanogaster*, *Chemico-Biological Interactions* (2018), doi: 10.1016/j.cbi.2018.06.033.

Honey protects against wings posture error and molecular changes related to mitochondrial pathways induced by Hypoxia/Reoxygenation in adult *Drosophila melanogaster*

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ABSTRACT

We conducted an investigation to evaluate the effects of Brazilian Pampa biome honey and its major phenolic compounds on the development of an erected wings posture phenotype and related mitochondrial aspects induced by Hypoxia/Reoxygenation (H/R) in *Drosophila melanogaster*. Flies were pre-treated for 3 days with a 10% honey solution and different concentrations of caffeic acid and ρ-coumaric acid and then submitted to hypoxia for 3h. We observed that after reoxygenation, some flies acquired an erected wings posture and that this feature may be related to mortality. In addition, H/R induced down-regulation of e*wg* mRNA expression, which could be associated to the observed complex phenotype. H/R also caused a dysregulation in *opa1-like*, *ldh* and *diap* genes expression and reduced O_2 fluxes in flie's mitochondria. Honey mitigated *opa1-like* mRNA expression changes provoked by H/R. Differently from honey, caffeic and ρ-coumaric acids displayed no protective effects. In conclusion, we report for the first time the protective effects of honey against complex phenotypes and mitochondrial changes induced by H/R in adult flies.

Keywords: hypoxia, honey, wing posture, *ewg*, *opa1-like*, mitochondria.