Glucose Metabolism on *Aedes aegypti* Diapause Eggs

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Insects have the potential to suffer significant increases in their activity under favorable conditions, or enter into diapause when in unfavorable conditions. Mosquitoes of the tribe Aedini produce eggs resistant to desiccation and cold through diapause. It enables the survival for several months under dry conditions in a dormancy state, which facilitates mosquitoes (re)infestation in different areas. Recent attention has been focused on the participation of amino acids and lipids in energy metabolism during *Aedes aegypti* embryogenesis. However, there are few studies that clarify carbohydrate metabolism during embryogenesis and diapause states. The aim of this work is to evaluate energy metabolism and investigate the key routes of glucose metabolism. Synchronous *A. aegypti* eggs were obtained and maintained at 28ºC. Diapause state was induced through dryness, starting at 48 hours after oviposition (HAO). Three groups of *A. aegypti* eggs were established as: initial diapause eggs (iD-eggs, frozen in liquid nitrogen 48 HAO and not exposed to dryness), diapause eggs (D-eggs, kept dry for 2 weeks) and post-diapause eggs (pD-eggs, diapause was interrupted by placing D-eggs on water). Pyruvate kinase (PK) and glucose 6-phosphate dehydrogenase (G6PDH) were determined to analyse glucolysis and penthose phosphate pathway, respectively. Both pathways were decreased on diapause eggs. Additionally, gluneogenesis was observed by determining fosfoenolpyruvate carboxikinase (PEPCK) activity. Our results suggest that diapause induction was able to increase PEPCK activity. Interestingly, D-eggs hydration stimulated the highest PEPCK activity observed. Further studies on glycogen content on these eggs are on the way and may contribute to better understand carbohydrate metabolism under this state.

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