

Proteomic Profile During Embryonic Development of Dengue Vector *Aedes albopictus* Mosquito

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doi: <http://dx.doi.org/10.13005/bbra/1510>

(Received: 18 October 2014; accepted: 11 December 2014)

Despite the potential impact of moisture on embryonation and egg eclosion of *Aedes* mosquitoes, little is known about its effect on protein synthesis during critical embryonic development as well as in the proteomic profiles. Thus, we quantify the protein concentration and proteomic profile during embryonic development of *Ae. albopictus* from far early of egg laying to egg eclosion in contact with sufficient moisture. It was observed that the concentration of protein started to decrease from the early hours (6th h) with progressing of embryonic development. There were more or less 13 bands observed in Coomassie blue staining of different embryonic stages within the range of ~58 kDa and ~7 kDa by using 12% separating gel in 1D SDS-PAGE. Among them highly expressed bands on the position of 11-13 of lower molecular weight at around 7 kDa were found in all treatments. They may have controlling effects on egg hatching. Identification of these specific proteins can give an insight direction of effective vector control way.

Key words: *Aedes*, moisture, protein profile, embryonation, egg hatching, dengue vector.

In oviparous organism, the will of embryogenesis depends largely on maternal nutrients during oogenesis (Vital *et al.*, 2010). In insects including *Aedine* mosquitoes, this latter process is the period during which, many nutrients are accumulated to further meet regulatory and metabolic needs of the developing embryo (Chippendale, 1978). Once the embryonic development is over, the pharate larva remains latent in the eggs (Novak and Shroyer, 1978), which is generally broken upon stimulation during flooding (Gjullin *et al.*, 1941). The amount of

dissolved oxygen is also considered as the major factor that stimulates larval eclosion (Gillet *et al.*, 1977). This observation which clearly minimise the effect of post-flooding stimulus, strongly suggests that events prior to flooding certainly play an important role in hatch success. In general, *Aedine* females oviposit preferentially on moist sites of container habitats that result from constant evaporation and flooding events (Hill *et al.*, 2006). Upon egg deposition, it faces varying moisture conditions and it must uptake sufficient moisture to complete embryonation (Strickman, 1980). In *Aedes* mosquitoes, embryo viability has been often associated with post-oviposition moisture conditions (Gjullin *et al.*, 1950; Saifur *et al.*, 2010). The maturation of *Ae. albopictus* and *Ae. aegypti* embryos in a highly humid environment resulted

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