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Resistance to the larvicide temephos and altered egg and larval surfaces characterize salinity-tolerant *Aedes aegypti*

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Aedes aegypti, the principal global vector of arboviral diseases and previously considered to oviposit and undergo preimaginal development only in fresh water, has recently been shown to be capable of developing in coastal brackish water containing up to 15 g/L salt. We investigated surface changes in eggs and larval cuticles by atomic force and scanning electron microscopy, and larval susceptibility to two widely-used larvicides, temephos and *Bacillus thuringiensis*, in brackish water-adapted *Ae. aegypti*. Compared to freshwater forms, salinity-tolerant *Ae. aegypti* had rougher and less elastic egg surfaces, eggs that hatched better in brackish water, rougher larval cuticle surfaces, and larvae more resistant to the organophosphate insecticide temephos. Larval cuticle and egg surface changes in salinity-tolerant *Ae. aegypti* are proposed to respectively contribute to the increased temephos resistance and egg hatchability in brackish water. The findings highlight the importance of extending *Aedes* vector larval source reduction efforts to brackish water habitats and monitoring the efficacy of larvicides in coastal areas worldwide.