

Phylogeographic Reconstruction of the Tiger Shrimp (*Penaeus monodon*) Invasion in the Atlantic Ocean: The Role of the Farming Systems in the Marine Biological Invasions

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Abstract : The tiger shrimp *Penaeus monodon* is one of the most important species in aquaculture and is native to the Indo-Pacific Ocean. During its greatest success in world production (70s and 80s) was introduced in many Atlantic Ocean countries for cultivation purposes and is currently reported as established in several countries of this area. Because there are no studies to understand the magnitude of the invasion process, this is an exciting opportunity to test evolutionary hypotheses in the context of marine invasions mediated by culture systems; therefore, the purpose of this study was to reconstruct the scenario of invasion of *P. monodon* in the Atlantic Ocean, by using mitochondrial DNA and eight loci microsatellites. In addition, samples of the invasion area in the Atlantic Ocean (US, Colombia, Venezuela, Brazil, Guienne Bissau, Senegal), the Indo-Pacific Ocean (Indonesia, India, Mozambique), and some cultivation systems (India, Bangladesh, Madagascar) were collected; and analysis of phylogenetic relationships (using some species of the family), genetic diversity, structure population, and demographic changes were performed. High intraspecific divergence in *P. semisulcatus* and *P. monodon* were found, high genetic variability in all sites (especially with microsatellites) and the presence of three clusters or populations. In addition, signs of demographic expansion in the culture population and bottlenecks in the invasive and native populations were found, as well as evidence of gene mixtures from all of the populations studied, implying that cropping systems play an essential role in mitigating the negative effects of the founder effect and providing a source of genetic variability that can ensure the success of the invasion.

Keywords : species introduction, increased variability, demographic changes, promoting invasion.

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