Population structure of the blue swimmer crab Portunus pelagicus in coastal areas of Malaysia inferred from microsatellites

ABSTRACT

Portunus pelagicus, distributed throughout the Indo-West Paci c region, is one of the large and edible species of blue swimmer crabs. Increasing demand for the frozen and canned crabmeat industry worldwide has now relied mainly on P. pelagicus which in turn generates splendid income for the fisherman communities. In the present study, the population genetic structure of P. pelagicus was examined using six pairs of microsatellite loci. A total of 87 crab samples were collected from five different coastal areas of Malaysia. Genomic DNA was extracted from each sample for polymerase chain reaction (PCR) amplification and fragment analysis. Four out of six microsatellite primers revealed polymorphic loci in P. pelagicus sampled. The number of alleles per locus in P. pelagicus ranged from 14 to 34. Microsatellites analyses indicated low levels of genetic differentiation among the P. pelagicus populations. The average observed heterozygosity (HO = 0.48) obtained was lower than the standard heterozygosity found in most marine populations (H O = 0.79). The high F IS values (mean F IS = 0.4756) and low F ST values (mean F ST = 0.0413) also suggested the existence of inbreeding among different populations of P. pelagicus. In conclusion, this study was able to shed light on the population structure of P. pelagicus in coastal areas of Malaysia.

Keyword: Blue swimmer crabs; Microsatellites; Population genetic structure; Portunus pelagicus.