

409/D

A preliminary investigation on the genetic diversity of *Penaeus monodon* shrimp stocks captured in different geographical locations in Sri Lanka

D R Herath

National Aquatic Resources Research and Development Agency, Crow Island, Colombo 15

The biological and economic importance of *Penaeus monodon* makes it necessary to study its genetic diversity and the population genetic structure to improve the species in important economic traits. In addition, it would also help in the knowledge-based fishery management and aquaculture development of this important biological resource. To study this genetic diversity, samples of *P. monodon* were collected from the areas of Hendela, Negombo, Katunayake, Chilaw, Kalpitiya and Beruwela. The DNA extracted from the pleopods of these samples was subject to PCR amplification, targeting the cytochrome C oxidase I (COI) gene segment in the mitochondrial genome. Nine sequences approximately 450 bp in length were obtained from the PCR products. These included 2 samples from Hendela, 1 sample from Katunayake, 1 sample from Negombo, 3 samples from Chilaw, 1 sample from Kalpitiya and 1 sample from Beruwela.

The sequences when aligned showed several regions that were 100% homologous (10 to 26 base pair regions) in all the samples analyzed indicating conserved regions within the gene segment studied. A sample from Chilaw and a sample from Hendela showed the same nucleotide substitutions in 24 positions showing a low genetic diversity existing between the *P. monodon* stocks of Hendela and Chilaw. The phylogenetic analysis showed that the samples from Hendela, Negombo, Katunayake, Chilaw and Kalpitiya occupying one clade and the Beruwela sample occupying a completely separate clade. These results show that the stocks of the western and the north western regions of Sri Lanka are different in origin to the origin of the stocks of *P. monodon* of Beruwela.

As this is an ongoing project, more samples will be collected and analyzed from regions considered in this study. In addition, samples will be collected from areas in the southern, eastern and north eastern regions of Sri Lanka such as Koggala, Kokilai and Batticaloa. The genetic diversity of *Penaeus monodon* in Sri Lanka could be further confirmed by analyzing these additional samples.

*deishiniherath@yahoo.com

Tel: 011-2521000