

## **Phylogeographic relationships and evaluation of proximate composition of golden trevally, *Gnathanodon speciosus* (Forsskål, 1775) in Sri Lanka**

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Golden trevally, *Gnathanodon speciosus* which belongs to the family Carangidae is an important commodity of food and ornamental fish industries. This fish is widely distributed throughout the tropical and subtropical waters of the Indian and Pacific Oceans. This study focused to determine the phylogeographic relationships of Sri Lankan *G. speciosus* and compare its proximate composition with other carangid species. Samples were collected from three geographical locations in Sri Lanka (Mannar, Kalpitiya and Jaffna) and sequences from partially amplified (649bp) mitochondrial Cytochrome Oxidase I gene region were used to infer phylogeographic analyses. Sequences derived from Sri Lankan samples were identical and sequences from other populations that represent different geographical locations were retrieved from the GenBank (N = 27). Analyses were performed using Maximum Likelihood methods using Kimura-2 parameter model with the support of 1000 bootstrap value. The derived phylogenetic tree indicated major geographic separation between the Indian and Pacific Ocean populations with 3.17% divergence level (P distance). Pacific Ocean populations grouped into two distinct clades as Australian (mean divergence 3.2%) and Malaysian populations (mean divergence 2.3%). Except one sequence from India, all other sequences that represent Indian Ocean populations clustered into two clades which were sister to each other with 100% bootstrap support. Low divergence levels within and among the clades (range 0 - 1.1%) suggest that there is a possibility for genetic admixture *G. speciosus* populations within the Indian Ocean. Comparison of nutritional components among four carangid species (*Caranx ignobilis*, *Alectis indica*, *Caranx heberi* and *G. speciosus*) indicated that *G. speciosus* has the highest protein and ash contents and the lowest lipid content. The protein content (45.53%) and moisture content (77.65%) showed significant differences ( $p < 0.005$ ) among selected species while there was no significant differences reported for lipid (8.55%) and ash (2.22%) contents ( $p > 0.005$ ). The gathered information will be a platform for further research of *G. speciosus*.

**Keywords:** *Phylogenetic relationships, cytochrome Oxidase I, genetic divergence, carangidae*

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