

Comparative Analysis of Physicochemical and Sensory Attributes of Mature and Immature Tumid Venus Clam (*Gafrarium tumidum*) in Different Locations of Jaffna Lagoon, Sri Lanka

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Tumid Venus clam (*Gafrarium tumiduni*) is one of the dominant and readily available coastal bivalves consumed by local residents in Jaffna district of Sri Lanka. Scientific data on physicochemical and sensory attributes of this species is however scarce. Therefore, the objective of this study was to determine physicochemical and sensory attributes of Tumid Venus clam in four different sites of Jaffna lagoon at two different maturity stages. Randomly collected 200 clams from each different sites of Jaffna lagoon: Karainagar (9.7481°N, 79.8829°E), Mandaitivu (9.6165°N, 79.9920°E), Kayts (9.6526°N, 79.9081°E) and Navanthurai (9.6687°N, 80.0007°E) were graded into two maturity stages as mature (100 clams ≥ 35 mm in each location) and immature (100 clams < 35 mm in each location) based on the shell length. The composite flesh samples were then subjected to analysis of physicochemical and organoleptic attributes using standard analytical protocols. Results revealed that there was a significant difference in color a^* (redness), b^* (yellowness), L^* (lightness), pH value, water holding capacity, moisture and ash contents with the location as food availability is changed with inhabiting region ($p < 0.05$). However, maturity stage had significant effects only on color a^* , b^* and L^* values and water holding capacity ($p < 0.05$). Based on the sensory evaluation, the appearance and taste of cooked clams were significantly varied with the location and maturity stage due to qualitative & quantitative changes of food items under different environmental conditions and variable nutritional requirements with maturity level ($p < 0.05$). The highest consumer acceptance was recorded for immature bivalve samples from Navanthurai. In conclusion, current study showed the suitability of low cost bivalve resources as a substitute for conventional, expensive seafood sources. Furthermore, location and maturity stage had a significant effect on physicochemical and sensory attributes of Tumid Venus clam.

Keywords: Jaffna lagoon, Physicochemical attributes, Sensory, Tumid Venus Clam