

SESSION - 11 - AQUACULTURE

NUTRITIONAL QUALITY AND SIZE CONSIDERATIONS OF SRI LANKAN *ARTEMIA* FOR USE IN COMMERCIAL HATCHERIES.

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Nutritional quality and size are the two important considerations when selecting a particular *Artemia* strain as a live feed in aquaculture hatcheries. The nutritional quality of *Artemia* is determined according to its fatty acid profile. Of the essential fatty acids (EFA), the Highly Unsaturated Fatty Acids (HUFAs) 20:5n3 and 22:6n3 largely determine the suitability of *Artemia* nauplii as food for marine fish and shellfish. *Artemia* can be classified into two categories:- those having high amounts of the EFA 18:3n3 recommended for freshwater fish (freshwater type) and those high in 20:5n3 recommended for marine fish and crustaceans (marine type).

The nutritional value of freshly-hatched *Artemia* nauplii from naturally occurring populations of Mahalewaya (ML) and cultured populations in Palavi (PAL) salterns was assessed by analyzing their fatty acid profile. The EFAs 18:3n3 and 20:5n3 amounted to 0.5% (Area %) and 12.0 %, respectively, in ML *Artemia* while PAL had 1.9% and 9.0%, respectively. The EFA 22:6n3 was 0.7% and 0.2%, in ML and PAL, respectively. The total HUFA n-3 \geq 20:3n3 content was 17.3% in ML *Artemia*. In PAL it was 9.2%.

Since the size of prey becomes a limiting factor for ingestion by marine fish and shrimp larvae, cyst and naupliar sizes in ML and PAL *Artemia* were compared for the purpose of recommending their use in hatcheries. The hydrated cyst diameter in ML and PAL *Artemia* were $267.9 \pm 0.82 \mu\text{m}$ and $248.7 \pm 0.82 \mu\text{m}$, respectively, the latter being significantly smaller. Decapsulated cyst diameter was $256.2 \pm 0.59 \mu\text{m}$ in ML, while that of PAL was significantly smaller ($242.7 \pm 0.65 \mu\text{m}$). The length of freshly-hatched PAL nauplius was significantly smaller ($423.9 \pm 3.01 \mu\text{m}$) than that of ML *Artemia* ($475.4 \pm 1.62 \mu\text{m}$).

Results indicated that the Sri Lankan *Artemia* which is a parthenogenetic strain had cyst and naupliar sizes which were smaller than most other parthenogenetic strains and could fulfill the size requirements of larvae in commercial hatcheries. The Sri Lankan *Artemia* also possesses a high nutritional quality in view of their high HUFA content and can be recommended as a suitable live feed for marine larvae in commercial hatcheries.

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