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Viable growth performance of *Betta splendens* (Regan, 1910) larvae with different aquaria environments and diets in the Jaffna district

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Betta splendens, a freshwater ornamental aquarium fish was chosen to study the viable larval growth performence, percentage of survival, appearance of colour pigments and positive feeding behaviour, using different diets in artificial (AE) and semi-natural (SE) environments in glass aquaria. Environmental factors such as water temperature, atmospheric pressure, hardness and pH were similar in all aquaria with minor diurnal fluctuations. However, dissolved oxygen content, ammonia content and biotic factors varied considerably between artificial and semi-natural aquaria. Larvae in artificial aquaria were fed with beef (BD) and soya meat (SMD) diets separately and zooplankton as a natural diet was used in seminatural aquaria. Positive feeding behaviour was indicated by larvae moving towards the diet very quickly and showing efficient feeding. This feeding behaviour was very prominat when using BD than SMD but not clear when using the natural diet. The larval growth performance was measured based on the increment in mean total body length (TL). Larval growth performance in semi-natural aquaria was 3.16 ± 0.70, but higher in artificial aquaria when using BD and SMD was 7.33 ± 1.50 and 6.33 ± 1.86 respectively. However no significant difference ($p>0.05$) was observed in larval growth performance when using BD and SMD. There was no significant different ($p>0.05$) in percentage survival of larvae fed with BD (65 %) and SMD (75%). However percentage survival was comparatively higher in semi-natural aquaria (90 %) because of the presence of natural hiding places, provided by aquatic plants. The pigmentation appeared on 7^{th} and 13^{th} days when larvae fed with BD and SMD respectively. However, in semi-natural aquaria colour pigmentation appeared only after 30 days. Therefore, BD and SMD are the best diets to enhance larval growth than the natural diet in glass aquaria, The selection of BD is justified due to positive feeding behaviour, early appearance of colour pigments and higher larval growth performance. Percentage survival was higher in SE than AE aquaria. So using BD as an artificial diet in a semi natural environmental condition will lead to viable propagation and would be important for the sustainability of ornamental fisheries in the Jaffna district.