

ABSTRACT

Martins, R.S., Roberts, M.J. and E.G. Vidal (2005)

Developing a semi-closed culturing system for rearing hatchling chokka squid (*Loligo vulgaris reynaudii*).

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A semi-closed aquarium system is presently being developed to rear chokka squid paralarvae (*Loligo vulgaris reynaudii*) at the MCM Aquarium in Cape Town. Paralarvae are maintained in small black circular tanks (220l). A slow current is created using a perforated, radial orientated, inflow pipe (jet-bar) to (a) minimize skin damage caused by the tank walls and (b) enhance paralarvae-prey interactions. Water temperature is presently 'semi-controlled' with approximately 20% of the total volume exchanged per day. Recycled water is treated using biological filtration. Two experiments have so far been performed using *Artemia sp. Nauplii* as the first post yolk food. Survival time of the paralarvae was 17 and 11 days respectively (a power failure interrupted the latter). This is an improvement on previous attempts to rear chokka squid paralarvae (~4-7 days). The short survival times are partly attributed to an incorrectly designed jet-bar, which caused turbulent currents and inappropriate food. Mortality quantified in the second experiment indicated 83% of the paralarvae were dead by the third day. Such high early mortality suggests starvation. Water chemistry (Ph, NH_4^+ , NO_2^- and salinity) was measured weekly, with water temperature daily. pH on average was found to be 8.3 (± 0.1 SD) whereas NH_4^+ and NO_2^- were not detectable during the experiments (0 mg l^{-1}). Salinity above 33 psu but not thought to be a factor in early mortality. Temperature showed wide variations between 13.7 and 21.1°C, mean 17.9, $\pm 1.4^\circ\text{C}$ Sd caused by upwelling in the adjacent ocean (intake pipe), but this range is normal for this species. Adjustments made for the next set of experiments include newly designed jet-bars and the use of enriched *Artemia sp. Nauplii*. These changes hope to not only improve survival rates, but also measure yolk utilization rate using histological sections.