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EVALUATION OF COPEPODS AS A LIVE FEED FOR THE LARVAL ASIAN SEABASS (*LATES CALCARIFER*)

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ABSTRACT

Seabass (*Lates calcarifer*) is one of the most important economically food fish in many Asian countries. However, total capture production of this fish is decreasing day by day in Malaysia due to decreasing wild stock, which puts increasing demand on the aquaculture of this fish. Many studies have been done on the aquaculture of Asian seabass. However, larval rearing techniques, including suitable nursery feeds is not yet standardized, which is crucial for better survival and growth of Asian seabass larvae. Live-feed is the essential for almost all fishes at least during the initial stages of their life cycle. It is already known that Asian seabass larvae prefer rotifer in age between 1 and 5 days, rotifer and *Artemia* nauplii in age between 6 to 10 days and only *Artemia* nauplii in age between 11 to 14 days. However, there is no reliable information on suitable live feed for the growth of Asian seabass larvae when age after 14 days. Based on this issue, a study was conducted to know the effects of feeding *Artemia* nauplii, and adult and nauplii of two copepods (*Acartia erythraea* and *Oithona brevicornis*) on growth and survival of 14, 20 and 25 days old Asian seabass larvae. *Acartia erythraea* and *O. brevicornis* were chosen in this study as they are nutritionally rich, easy to culture, high rate of reproduction, salinity tolerance and available in tropical waters. A 21day experiment was conducted in 45 fibreglass tanks. The size of each tank was 70 cm × 50 cm × 30 cm holding approximately 100 L of seawater. A factorial design was used, the factors being fish larval age (3 levels: 14, 20 and 25 days old Asian seabass larvae) and live feed (5 levels: nauplii of *A. erythraea*, adult of *A. erythraea*, nauplii of *O. brevicornis*, adult of *O. brevicornis* and nauplii of *Artemia*). The combinations of the two factors resulted in a total of 15 treatments, all of which were performed in triplicate. A total of 1000 fish larvae (10 larvae/L) were stocked in each tanks. All fish larvae were collected from a seabass hatchery while both copepods were cultured in the laboratory. All larvae were fed three times a day, at approximately 06:30 h, 13:00 h and 19:30 h. The results indicated that seabass larvae grew better (higher specific growth rate, final length and final weight) in tanks supplied with copepods than *Artemia* nauplii. The effects were more pronounced in the case of 25 days old larvae than in the case of 20 days old larvae, followed by 14 days old larvae. Fatty acid analysis analysis of *L. calcarifer*

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larvae showed that total n3 fatty acids were higher in larvae fed with copepods diet than those of feeding with *Artemia* nauplii diet. Therefore, besides higher growth rates, the quality of seabass seeds can be improved if *A. erythraea* or/and *O.brevicornis* is/are used as live feed. This experiment suggests that the copepods can be used as a suitable live feed for larval rearing of highly valued *L. calcarifer* larvae.

Keywords: Fish, aquaculture, nursery feed