Intensive cultivation of a subtropical paracalanid copepod, *Parvocalanus* sp., as prey for small marine fish larvae

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A small paracalanid copepod, *Parvocalanus* sp., was isolated from Hawaiian coastal waters and subjected to a series of laboratory experiments to ascertain the effects of different combinations of microalgae (*Chaetoceros* sp. and *Isochrysis* sp.) on copepod survival, growth and fecundity. Adult copepods exhibited the highest survival when fed *Chaetoceros* sp., whereas fecundity was highest (up to 21 offspring/adult/day) when *Chaetoceros* sp. was offered in combination with *Isochrysis* sp. The viability of nauplii produced by adult copepods fed *Chaetoceros* sp. was lower than from adults fed *Isochrysis* sp., in terms of survival and growth. *Chaetoceros* sp. was also an inferior diet for nauplii. Copepodid stages of *Parvocalanus* sp. exhibited similar survival on all diet combinations, but had the greatest growth when fed *Isochrysis* sp. Large quantities of *Parvocalanus* sp. were also cultured routinely in 400L tanks using a mixed diet of *Chaetoceros* sp. and *Isochrysis* sp. Copepod population densities fluctuated cyclically in these cultures, with nauplius densities ranging from approximately 1 to 30/mL. Up to 49 million *Parvocalanus* sp. nauplii were harvested per 400 L tank during preliminary 30 day trials to assess nauplius harvesting techniques. Red snapper, *Lutjanus campechanus,* larvae offered *Parvocalanus* sp. nauplii exhibited significantly greater survival to day 7 post-hatch (50.3%) compared to larvae fed ss-type rotifers (2.6%) and were significantly larger in size, confirming the efficacy of *Parvocalanus* sp. nauplii as a first feed for small subtropical marine fish larvae.