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Effects of Temperature and Substrate on Growth and Survival of *Penaeus semisulcatus*
(Decapoda: Penaeidae) Postlarvae

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Abstract: This study was carried out to determine the optimal water temperature and to investigate the effects of additional substrate on growth and survival during the nursery culturing of *Penaeus semisulcatus* in two separate experiments. At the end of six weeks, survivals of postlarvae (PLs) at 22, 24, 26, 30 and 34°C were 52, 46, 70, 30 and 40%, respectively. The highest (2.76 mm/week) and lowest growth rates in terms of total length (0.43-0.49 mm/week) were displayed by the PLs grown at 34°C and 22-24°C, respectively. Growth rates were 1.75 mm/week at 30°C and 1.03 mm/week at 26°C. Final individual weight showed a drastic increase (over five times) with increasing temperature level from 22°C (55 mg) to 34°C (285 mg). Individual final weights at 22, 24 and 26°C were not significantly different from each other ($P>0.05$). Weight gain per week was 432 mg/week at 34°C and 58-68 mg/week at 22-24°C. The PLs at 34°C had a growth rate 6-7 times faster than those at 22-24°C. Yield at 34°C (5.7 g) was four times as high as that at 22°C (1.43 g). The yield at 24, 26 and 30°C was 1.40, 3.03 and 2.59 g, respectively. Artificial substrate constructed of seine netting to increase habitat area did not improve the survival and growth of postlarvae compared with the control.

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