EVALUATION OF SOME ALGAL SPECIES AS FOOD FOR SYDNEY ROCK OYSTER *SACCOSTREA COMMERCIALIS* LARVAE

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Sydney rock oyster (*Saccostrea commercialis*) larvae have been reared in hatcheries for over 9 years, but no studies had been carried out to evaluate the value of different species of algae as food for these larvae. Two species, *Pavlova lutheri* and *T. Isochrysis* aff. *galbana* have been used routinely for feeding these larvae. The findings by Enright et al. (1986a, b) that the 20:5ω_3 and 22:6ω_3 fatty acids are of great importance to the food value of algal species, has given oyster larval nutrition a new direction. However, algae size and algal cell wall digestibility are other factors to be considered. The following range of algal species: the diatoms *Phaeodactylum tricornutum*, *Chaetoceros calcitrans*, *Chaetoceros gracilis* and *Thalassiosira peeudonana* and the flagellates Tahitian *Isochrysis* aff. *galbana*, *Pavlova lutheri*, *Chroomonas salina*, *Nannochloris atomus*, *Dunaliella tertiolecta*, *Tetraselmis chui* and *Tetraselmis suecia* were fed to Sydney rock oyster larvae either singly or in combination with *Pavlova lutheri*.

One day old D-stage oyster larvae were stocked in 8 l non-aerated aquaria at a density of 5 larvae/ml. Water in the aquaria was maintained at 26^{0}C and changed every 48 hours with the larvae being retained on a 45µm screen. Algae were added to the aquaria at the rate of 0.95mg dry weight per litre at the start of the experiment and after every water change. When a combination of algae species was used, they were supplied on a calculated equal dry weight basis. The experiment lasted for 6 days.

When supplied singly, *Chroomonas salina*, *T. isochrysis* aff. *galbana* and *Pavlova lutheri* produced the best growth rates. In combination with *Pavlova lutheri*, *T. isochrysis* aff. *galbana* gave the best growth rates for Sydney rock oyster larvae. *Pavlova lutheri* has high concentrations of the two important fatty acids 20:5ω_3 and 22:6ω_3 (Brown et al., 1989) and should therefore form the basis of all oyster larval diets. However, it was interesting to note that growth rates of larvae were greatly increased by the addition of *Nannochloris atomus*, a species that has only a low concentration of the 20:5ω_3 fatty acid (Brown et al., 1989). This species had not previously been used for the feeding of Sydney rock oyster larvae and did not produce rapid larval growth rates when used as the sole food source. When the algal species were supplied singly, the most successful species were all flagellates.

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