

Effect of antibiotic treatment during larval development of the Chilean scallop *Argopecten purpuratus*

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Abstract

The requirement for antibiotic use in a culture depends principally on the quality of water available and on the use of strict husbandry of the materials closely related with the culture. The purpose of the present study was to determine the dose of chloramphenicol resulting in better survival and growth rates of Chilean scallops between the early larvae and pediveliger stages cultured in closed systems with manual dosing of food two times per day. Two experiments with antibiotic application during larval development of the Chilean scallop (*Argopecten purpuratus*) were conducted. The experiments were carried out at the early larval stage (86 μm) and at the eyed stage (213 μm). The antibiotic concentration ranged between 0 and 8 mg l^{-1} chloramphenicol (CHL) per day. The survival and growth rates of the larvae were monitored for 10 days at each stage. In the experiment with eyed larvae, larval settlement and percent metamorphosis were measured. Use of an antibiotic on the early larvae resulted in significantly better growth and survival. Growth rates were 2.3 ± 0.3 and $2.6 \pm 0.2\%$ per day when using 2 and 8 mg l^{-1} CHL per day, respectively, compared with $1.3\% \pm 0.2$ per day for the larvae without antibiotic. Survival was also better with antibiotic treatment reaching 50% compared with 35% without antibiotic. The metamorphosis was highest using of 8 mg l^{-1} CHL day^{-1} , compared with treatment without antibiotic. Between 75 and 79% of the metamorphosed larvae were found settled on the nets in the treatments using 2 and 8 mg l^{-1} , while only 55.5% were settled in the nets in the treatment without antibiotic. The results of the experiments indicate that concentrations of 2 and 8 mg l^{-1} CHL demonstrated effective control of larval contamination. Moreover, the condition of the postlarvae was improved by the addition of 8 mg l^{-1} CHL from eyed larvae to postlarvae.

Keywords

Chloramphenicol; Larviculture; *Argopecten purpuratus*; Hatchery