Comparison the Efficiency of 4 Seaweeds in the Removal of Nitrogen and Phosphate in Effluent from Orange Spotted Grouper

*(Epinephelus coioides Hamilton, 1822)* Culture

Pramaiporn Thongcanarak* and Youngyut Predalumpaburt

Coastal Aquaculture Research Institute

Abstract

Comparison the efficiency of 4 species of seaweeds in the removal of nitrogen and phosphate in effluent from Orange Spotted grouper (*Epinephelus coioides*) culture was conducted in the aquaria size of 24x50x30 cm using static experiment for 15 days. The experiment was designed into 4 treatments of seaweeds, *Ulva* sp., *Enteromorpha intestinalis*, *Gracilaria fisheri* and *Caulerpa lentillifera* in comparison with control treatment (without seaweed). Each treatment had 3 replications. During the experiment, the concentrations of total ammonia, nitrite, nitrate, and phosphate were analyzed on day 1, 2, 3, 4, 5, 6, 7, 9, 11, 13 and 15. *Ulva* sp., *Enteromorpha intestinalis*, *Gracilaria fisheri* and *Caulerpa lentillifera* had efficiencies in removal of total ammonia (99.5, 87.3, 99.6 and 99.2%). *Gracilaria fisheri* showed the best efficiency in removal of ammonia nitrite and phosphate (99.6, 70.9 and 98.4% respectively). *Caulerpa lentillifera* showed the best efficiency in removal of nitrate (92.0%) Although, *Enteromorpha intestinalis* showed its efficiency in removal of nutrients in the effluent, the inorganic nitrogen and phosphate were released again into water during seaweed die off and decomposed. Thus, this study suggests that the using of seaweed in effluent treatment should consider not only efficiency of seaweed but also its ability in adaptation to survive in the specific condition of effluent from aquaculture pond.

**Keywords:** Seaweeds, Drained Water, Nitrogen, Phosphate

*Corresponding author : Kaosan Rd. Soi 1 T.Kaorubchang, Muang, Songkhla 90000. Tel.0 7431 1895

e-mail : pramaiporn@nicaonline.com*