

UNIVERSITY OF THE PHILIPPINES VISAYAS
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**GROWTH AND NUTRITIONAL CONTENT OF THE RED SEAWEED
Gracilaria bailinae (ZHANG *ET AL.*, 1995) GROWN UNDER DIFFERENT
FERTILIZATION SCHEME**

A Special Problem
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Division of Biological Sciences
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ABSTRACT

The accelerated development of fish aquaculture has caused many environmental problems. The most evident effects resulting from this activity is the increase in organic material, the reduction in dissolved oxygen and the excessive rise in inorganic nutrients such as nitrogen, phosphorous and carbon dioxide. The integration of seaweeds to fed cultured species has long been recognized as promising approach to reduce the excess nutrients released by aquaculture activity. The nitrogen and phosphate uptake kinetics, growth and nutritional content of the seaweed *Gracilaria bailinae* were studied in a series of outdoor tanks, fertilized with commercial fertilizer (NH_4Cl , NaNO_3 , and Na_2HPO_4) and shrimp culture waste water. The nutritional content of *G. bailinae* before and after fertilization was also determined through proximate analysis. Results showed a significant removal of dissolved nutrients by *G. bailinae*, although definite uptake rate could not be determined since the data were erratic and Michaelis-Menten model could not be applied. Seaweeds fertilized with shrimp waste water showed best specific growth rate ($1.37 \pm 0.2 \% \text{ d}^{-1}$) over other fertilization scheme. This suggests that shrimp pond effluents could promote good growth on *G. bailinae*. Local *G. bailinae* had high protein content per se (14%) but became more enhanced when fertilized with commercial or shrimp waste water (23-32%). In contrast, its carbohydrate content dropped when heavily fertilized from 39% to 19%.