

***Chaetomorpha linum* in the bioremediation of aquaculture waste: nutrient removal efficiency at the laboratory scale**

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Aquaculture consists of the farming of aquatic organisms and today constitutes a very important economic sector of food production; therefore, it requires particular attention to the treatment of wastewater to avoid environmental damage and ensure sustainable management of natural resources. In aquaculture systems, nitrogen compounds are constantly produced, converted and consumed. The production of nitrogenous compounds by farmed fish creates an imbalance in the environment which can compromise water quality and the sustainability of economic activity. In this scenario macroalgae on account of their ability to remove the excess of nutrients from wastewater, can be used as a biofilter thus representing a valuable tool for achieving more sustainable aquaculture.

In this study, the concentration of nitrogenous compounds, i.e. ammonium ions, nitrites and nitrates in the waste collected in a mariculture plant (Maricoltura Mar Grande) located in the Mar Grande of Taranto (Ionian Sea) was determined. In addition, the variation of these nitrogenous compounds in the wastewater was investigated after the introduction of green seaweed *Chaetomorpha linum* in laboratory conditions. From the obtained results we highlighted the ability of this algal species to reduce the concentration of nitrogenous compounds. In particular, ammonium ions and nitrites were reduced at about a half by the action of *C. linum*. By contrast an increase of nitrates was observed as a consequence of the alga uptake of the other nitrogen forms. These results are noteworthy since high concentrations of nitrites and ammonium ions represent a hazard for fish and the marine life and thus suggest the employment of this algal species as a bioremediator for aquaculture practices.