

Nitrogen Metabolism in Colour Strains of *Hypnea musciformis* (Rhodophyta)

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In Brazil, the seaweed *Hypnea musciformis* (Rhodophyta) is the main raw material for the production of carrageenan, which is a sulphated polysaccharide with industrial and pharmaceutical applications. Then, the knowledge of nitrogen metabolism is very important for its cultivation. The objective of this study was to evaluate the effects of nitrate availability (zero to 100 μM) on growth rates (GR), contents of proteins and photosynthetic pigments (AFC-allophycocyanin, FC-phycoerythrin, FE-phycoerythrin and Cl_a-chlorophyll *a*), photosynthesis (P), respiration (RE), and its relation to the nitrogen uptake and release of dissolved organic nitrogen (DON) by the phycoerythrin-deficient strain (light-green colour, LG) and the wild strain (brown colour, BR) of *H. musciformis*. LG strain showed positive correlations among nitrate concentrations and GR, protein contents and RE, while BR strain showed positive correlations among nitrate concentrations and GR, protein contents, FC, FE and P. These results showed that with addition of nitrate, LG strain stored nitrogen mainly as protein, and BR strain as protein and pigment. Moreover, respiration of the LG strain increased with nitrate concentrations, while the photosynthesis increased in BR strain. In both strains, nitrate uptake increased linearly with nitrate concentrations. However, LG and BR strains released high amounts of DON in presence of the seawater with nitrate addition of 80 μM and 100 μM , respectively. The results show that both colour strains of *H. musciformis* are efficient in removing nitrogen from seawater at nitrate concentrations lower than 80 μM , above this a great part of removed nitrate is released to seawater as DON.

Key words: *Hypnea*, colour strains, nitrogen metabolism

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