



## Effect of feeding and light on the nitrogen isotopic composition of a zooxanthellate coral

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Experiments were performed in laboratory, under controlled conditions, in order to investigate the effect of light and feeding on the  $\delta^{15}\text{N}$  composition of zooxanthellae and animal tissue of *Stylophora pistillata*, a zooxanthellate coral. One group of corals was fed twice a week with freshly collected zooplankton and compared to a starved control group. Each group was also cultivated under three light levels (80, 200 and 300  $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ ).  $\delta^{15}\text{N}$  value of the zooplankton was measured (6.75 permil) during the course of the experiment. Results obtained showed that  $\delta^{15}\text{N}$  values of coral tissue were significantly heavier than those of zooxanthellae:  $7.65 \pm 0.09$  permil vs.  $6.46 \pm 0.10$  permil, for all culture conditions. The  $\delta^{15}\text{N}$  of coral tissue measured in each light condition was not different within each group of fed (ANOVA,  $P=0.9$ ) or starved colonies (ANOVA,  $P=0.6$ ). When pooling data obtained under the 3 light levels, the  $\delta^{15}\text{N}$  of fed coral tissue ( $7.36 \pm 0.11$  ‰) was lighter than the  $\delta^{15}\text{N}$  of starved coral tissue ( $7.88 \pm 0.12$  permil). We also observed a significant effect of feeding on  $\delta^{15}\text{N}$  of zooxanthellae (ANOVA,  $P<0.0001$ ). The mean value was  $5.95 \pm 0.12$  permil for fed and  $7.00 \pm 0.11$  permil for starved colonies. We confirmed that  $\delta^{15}\text{N}$  can be used as a proxy in identifying trophic status of corals.