Calcification does not stimulate photosynthesis in the zooxanthellate scleractinian coral Stylophora pistillata

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ABSTRACT: The interaction between photosynthesis and calcification remains poorly known in zooxanthellate scleracti-nian corals. We tested whether calcification is a significant source of CO_2 for photosynthesis in *Stylophora pistillata*. Rates of net photosynthesis, respiration, and calcification were measured on colonies incubated in synthetic seawater (SSW) controlled with respect to the inorganic carbon system and containing standard (11.40 mmol kg^{-1}) and low (2.85 mmol kg^{-1}) calcium concentrations. Net photosynthesis and respiration are not significantly different in standard and low-Ca^{2+} SSW despite a rate of calcification 2.0-2.4 times lower in Ca^{2+} -depleted SSW. Additional experiments carried out on the noncalcifying zooxanthellate Anthozoa *Anemonia viridis* demonstrate that a low calcium concentration has no direct effect on rates of photosynthesis and respiration. It is suggested that calcification is not a significant source of photosynthetic CO_2 and that photosynthesis stimulates calcification rather than the opposite.