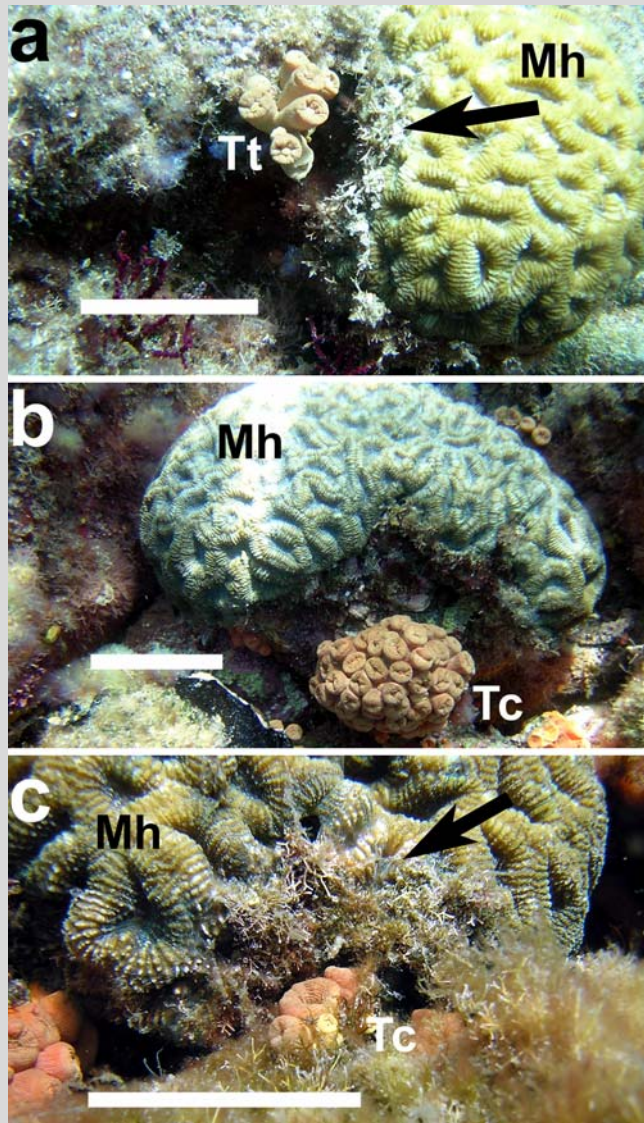


# Two invasive alien azooxanthellate corals, *Tubastraea coccinea* and *Tubastraea tagusensis*, dominate the native zooxanthellate *Mussismilia hispida* in Brazil

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**Fig. 1** Contact between native *Mussismilia hispida* (Mh) and **a** *Tubastraea tagusensis* (Tt), **b** *Tubastraea coccinea* (Tc), **c** detail of damaged area. Scale bars = 5 cm, arrows indicate damaged areas of the native coral

It is of great interest to know whether alien species have detrimental effects on native ones. Corals are not often reported as invasive but *Tubastraea coccinea* and *Tubastraea tagusensis* (Dendrophyllidae) are two alien azooxanthellate corals which have invaded rocky reefs at Ilha Grande Bay, southeastern Brazil (de Paula and Creed 2004). The benthic reef communities are typical of shallow water marginal reef sites, dominated by mats of the zoanthid *Palythoa caribaeorum*, crustose corallines and articulated coralline algal turfs and sponges.

The most conspicuous scleractinian is *Mussismilia hispida* (Mussidae), which is endemic to Brazil and is most abundant in the shallow subtidal. *T. coccinea* and *T. tagusensis* are also found in greatest abundance at shallow depths (0–3 m). *Tubastraea* spp. densities can reach 792 m<sup>-2</sup> (de Paula and Creed 2005).

A survey of three invaded sites found that in 100% of *Tubastraea*–*Mussismilia* contacts, *Mussismilia* showed damage when at distances of  $\leq 5$  cm from the aliens, but the effect was not reciprocal (Fig. 1). Both aliens caused necrosis to the near side of the native colony (Fig. 1a, b) dead areas were usually overgrown by sponges or crustose coralline algae, and sometimes even by *Tubastraea* recruits. Most colonies developed deformations at the contact zone (Fig. 1b).

The evidence suggests that the two azooxanthellates are competitively dominant and can reduce or exclude the native coral. This has implications that go farther than local exclusion or extinction: the competitive removal of the native coral reduces production, so ecosystem functions may be compromised.

## References

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