Marine sponges often host metazoan epi- and endobionts such as polychaetes or crustaceans that are provided with important functional benefits (e.g. shelter and food) (Wulff et al. 2006). However, evidence for potential benefits gained by the sponge hosts from these associations is scarce. The coral reef sponge *Chalinula nematifera* (Haplosclerida, Chalinidae; de Laubenfels, 1954) occurs throughout the tropical Indo-West Pacific and has recently been reported to frequently infest, kill and rapidly overgrow various scleractinian coral taxa along the eastern coast of Sulawesi Island, Indonesia (Rossi et al. 2015). To date, the drivers transforming *C. nematifera* into this potential threat to coral reefs are unknown.

During exploratory dives at four sites around Banta Island (8°23′50.86″S, 119°19′2.83″E; Lesser Sunda Islands, Indonesia) in July 2009, *C. nematifera* was frequently (>50 times) observed spreading over living scleractinian coral colonies on the fore reef (5–10 m water depth; Fig. 1a). In more than 75% of encounters, *C. nematifera* was associated with dense clusters of minute (size <5 mm), red fluorescent epizoans (up to 8 ind. cm\(^{-2}\) sponge), which were identified as isopods of the genus *Santia* (Asellota, Santiidae; Sivertsen and Holthuis, 1980) crawling on the sponge surface close to sponge-coral overgrowth zones (Fig. 1b, c). At the explored reef sites, red fluorescent *Santia* isopods were exclusively found associated with *C. nematifera*. Lindquist et al. (2005) reported that these *Santia* isopods owe their bright coloration to dense carpets of unicellular cyanobacteria covering their exoskeletons, which *Santia* cultivate for consumption. Besides red fluorescence, the cyanobacteria episymbionts produce chemical defense compounds repulsive to reef fishes, and thereby effectively lower predation pressure on their isopod hosts (Lindquist et al. 2005). Whether this microbe-mediated chemical defense function, vital to the isopod-cyanobacteria symbiosis, may potentially also benefit the frequently associated sponge host *C. nematifera*, i.e. by causing lowered predation pressure due to repulsion of spongivorous fish species, and thus promote its rapid overgrowth of scleractinian corals, remains to be investigated.

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**Fig. 1** Association of red fluorescent *Santia* isopods with the coral-killing sponge *Chalinula nematifera*. a *C. nematifera* progression on a large living *Echinopora* sp. coral colony, b close-up of *Echinopora* sp. sponge-coral overgrowth zone with associated *Santia* isopods, c cluster of *Santia* isopods in a sponge surface hollow, scale bars: 0.4 m (a), 2.5 cm (b), 1.0 cm (c). All photographs were taken during daytime exposed by the water depth-specific natural light spectrum (without excitation/emission filters) using a commercial grade digital still camera (Panasonic DMC-TZ5, 1/2.33” CCD sensor) and recorded in sRGB (24 bit) colour mode.