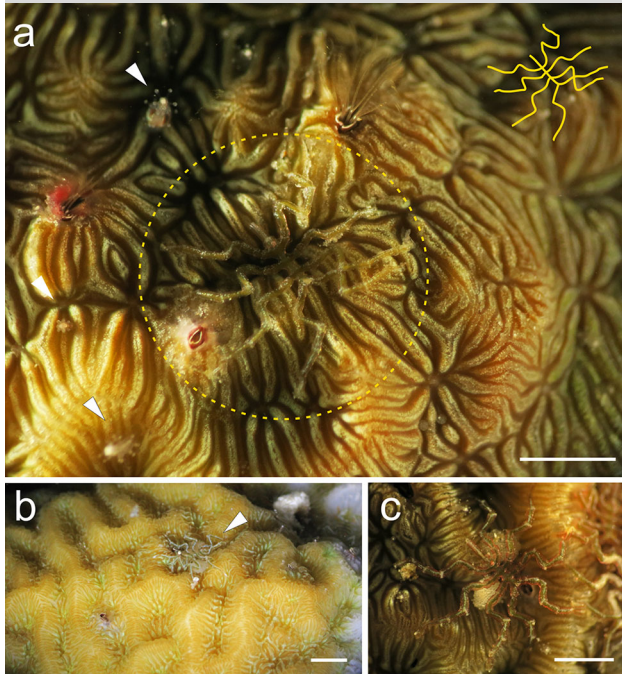


## Camouflage of sea spiders (Arthropoda, Pycnogonida) inhabiting *Pavona varians*



**Fig. 1** **a** *Endeis* sp. on *Pavona varians* displaying extreme camouflage (dashed line); **b** *Endeis* sp. carrying eggs; **c** close-up of *Endeis* sp. Scale bars: ~ 2 mm

Despite the controversial phylogenetic position of the Class Pycnogonida, sea spiders account for an enormous diversity of species, inhabiting all benthic marine habitats worldwide. Although they have been observed on coral reefs, few sea spider species have been reported in association with coral reef organisms and even more rarely with reef-building corals (Stella et al. 2010). In a biodiversity study in 2017, various individuals of *Endeis* sp. were observed on *Pavona varians* colonies inhabiting the coral reefs surrounding Magoodhoo Island, Maldives. The sea spiders were generally observed dwelling on and between the corallites of *P. varians*, with each leg overlapping the natural long septa of the coral. Their motionless behaviour rendered them completely undetectable without careful inspection (Fig. 1). The nature of the relationship between the corals and sea spiders on this reef is not clear, although Arango (2001) previously reported feeding behaviour by sea spiders on fire corals. Moreover, sea spiders are also known to be parasitically associated with several organisms, including at least 20 hydrozoan species, in which the gastrovascular cavities of the polyps are used for the development of the pycnogonid protonymphs (Bettim and Haddam 2013). It is likely that *Pavona*-inhabiting sea spiders, as well as other coral cryptobenthic associates, are commensals, just looking for shel-

ter among corallites or coral tentacles; however, the co-occurrence of coral-associated hydrozoans of the genus *Zanclaea* (Fig. 1a, arrowheads) and egg-carrying individuals on all observed *P. varians* colonies (Fig. 1c) suggests many possible scenarios. There have been few research efforts investigating small coral-associated invertebrates with extremely successful cryptic strategies, such as these pycnogonids, and it is likely that this has led to the lack of observations regarding this association. To our knowledge, this finding represents the first record of sea spiders observed on reef-building corals in the Indian Ocean and serves to improve the scarce knowledge of coral-associated sea spiders.

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