

The occurrence of boring bivalve (Genus: *Zachisia*), in a tropical seagrass meadow in Gaya Island (Sabah, Malaysia) and its possible ecological implications

ABSTRACT

Shipworms (family Teredinidae) are specialized bivalves that bore into the submerged wooden structures and mangrove trees, except genus *Zachisia* which is associated with seagrass rhizome. However, only one species has been described, located in Russian, Korean and Japanese waters and associated only with genera *Phyllospadix* and *Zostera*. Potentially wider distributions and even new species within this group have not been reported from another bioregion. Given the potential impacts on seagrass health, it is important to ascertain if the distribution of *Zachisia* extends across other climatic regions and seagrass species. In response, a study was conducted in a seagrass meadow at Gaya Island (Sabah, Malaysia). A total of 900 seagrass shoots were randomly excavated from a mixed seagrass bed of *Enhalus acoroides*, *Cymodocea rotundata* and *C. serrulata*. It was found that *Zachisia* sp. was present within the rhizomes of *E. acoroides* and *C. rotundata*, with an occupancy of around 12% occupancy (n=100) and 1% (n=400), respectively. A post-mortem examination indicated that the bivalve appeared to have ingested most of the rhizome's internal tissues, leaving behind a calcareous hollow tube. Furthermore, this apparent infestation appeared to significantly reduce shoot growth by around 70% from 0.738 ± 0.036 to 0.220 ± 0.038 cm day⁻¹. This finding may be significant, as it suggests, for the first time, that the rhizome parasitism is another possible vector in controlling seagrass growth and mortality. Further investigations are required to determine if this boring bivalve is indeed a new species, its distribution in other tropical areas and its role in the ecosystem.