First record of the fireworm *Hermodice carunculata* (Annelida, Polychaeta) preying on colonies of the fire coral *Millepora alcicornis* (Cnidaria, Hydrozoa)

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Abstract: The polychaete *Hermodice carunculata* is a voracious predator of several benthic organisms and one of the preferential groups in its diet is that of the cnidarians. This note presents the first record of a fireworm preying on the calcified hydroid *Millepora alcicornis*. The fireworm engulfs the terminal branches of the fire coral and spends several minutes scraping the surface and removing the soft tissues. Despite this being one of the most common calcified hydroids of the Brazilian northern and northeastern regions (and home to a vast associated community), this kind of association had never been recorded. This discovery points to the need of studying such associations because the damage caused by this polychaete is irreversible and depending on the amount of predators might alter reefs' health or modify the components of the reef community.
Keywords: *Amphinomidae, calcified hydroid, predation, Brazil.*

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Resumo: O poliqueta *Hermodice carunculata* é um voraz predador de vários organismos bentônicos e um dos grupos preferenciais na sua dieta é o dos cnidários. No presente trabalho se apresenta o primeiro registro de predação do verme de fogo sobre o hidrocoral *Millepora alcicornis*. O verme engolfa os ramos terminais do hidrocoral e fica vários minutos raspando a superfície e retirando os tecidos moles. Apesar deste hidrocoral ser um dos representantes mais comuns dos recifes do norte e nordeste brasileiros e de albergar uma vasta comunidade associada, nunca tinha sido registrada esta associação. Esta nova descoberta alerta na necessidade de se estudar esta associação já que geralmente os danos ocasionados pelo poliqueta são irreversíveis e dependendo da quantidade de predadores pode alterar a saúde dos recifes ou modificar os componentes da comunidade recifal.
Palavras-chave: *Amphinomidae, hidroide calcário, predação, Brasil.*

The amphinomid polychaete, *Hermodice carunculata* (Pallas 1776), is a widespread resident of coral reefs and littoral areas of the Caribbean and Western Atlantic Ocean (Lizama & Blanquet 1975). It is apparently omnivorous (Marsden 1963b), feeding on sedentary animals and algae. This fireworm is regarded as an important predator on coral reefs where it grazes upon zoanthids, anemones, gorgonids, hydrocorals, scleractinians and octocorals (Lizama & Blanquet 1975, Lewis & Crooks 1996, Souza et al. 2007). Of particular interest is the fact that this polychaete feeds on living hermatypic corals – more specifically *Porites porites* and *P. astreoides* (Marsden 1962, 1963b) – and on the colonial zoanthid *Palythoa mammillosa* (Marsden 1968). Witman (1988) and Lewis & Crooks (1996) studied this worm feeding on colonies of the calcified hydroid *Millepora complanata*, and such ecological relationship seems to be quite common in the Caribbean Sea.

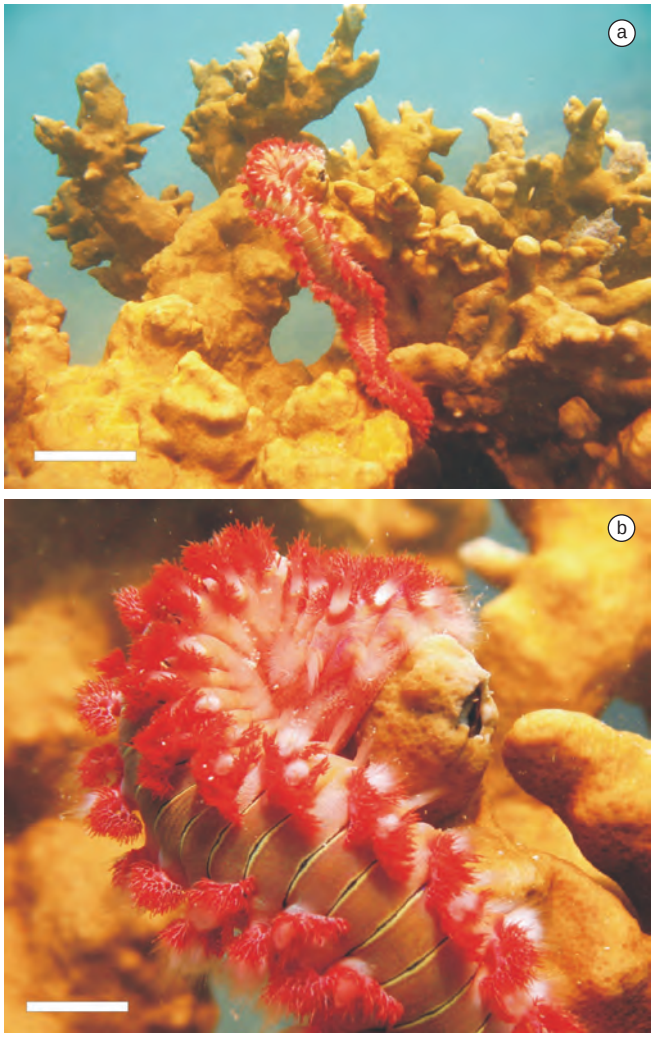

Figure 1. *Hermodice carunculata* **a** in a colony of *Millepora alcicornis* at Ponta de Mangue reef, Brazil; escale bar: 8,5 cm, and **b** engulfing a terminal branch of the fire coral; escale bar: 1,7 cm.

Figure 1. *Hermodice carunculata* **a** sobre uma colônia de *Millepora alcicornis* nos recifes de Ponta de Mangue, Brasil; escala: 8,5 cm, e **b** engolindo um ramo terminal do coral de fogo; escala: 1,7 cm.

Hermodice carunculata initiates feeding by the application and attachment to the prey of the everted buccal mass. Predigestion of the coral polyps apparently results from the liberation of digestive enzymes from the buccal cells, as extracts of this region possess lipolytic and proteolytic activity (Marsden 1963a).

In coastal reefs of Ponta de Mangue, Alagoas, Brazil, several fireworms were observed feeding on *Millepora alcicornis* Linnaeus, 1758 during the morning (Figure 1a). The polychaete engulfed the terminal branches of the colony for many minutes (between 15' and 30') and remained static while removing the tissue (Figure 1b). *Millepora alcicornis* is one of the most common calcified hydroids of tropical American reefs and provides an optimal environment for epibionts (Amaral et al. 2008). Garcia et al. (2008, 2009) found a lush macrofauna associated with the colonies of *M. alcicornis* in reefs of northeastern Brazil, yet did not record the presence of *H. carunculata*. This is the first time that such a prey-predator association is being recorded between these animals in tropical Atlantic waters.

This relationship may cause permanent damage to its prey due to excessive consumption of tissue or by initiating a sequence of algal colonization in feeding lesions (Ott & Lewis 1972, Witman 1988). Excessive damage by predators may affect the general health of reefs or alter the composition of reef communities (Witman 1988). An example is the case of the crown-of-thorns starfish *Acanthaster planci* (Linnaeus 1758) considered a major predator of corals (yet a normal member of coral communities), but widespread population explosions have caused dramatic reductions of coral cover in Indo-Pacific coral reefs (Endean 1982).

In this context, in order to estimate the extent of the damage that could be caused by *H. carunculata* to corals of northeastern Brazilian reefs, we suggest that research projects be carried out to monitor and evaluate population density, their foraging cycles and the amount of time spent feeding.

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References

AMARAL, F.M.D., STEINER, A.Q., BROADHURST, M.K. & CAIRNS, S.D. 2008. An overview of the shallow-water calcified hydroids from Brazil (Hydrozoa: Cnidaria), including the description of a new species. Zootaxa 1930:56-68.

ENDEAN, R. 1982. Crown-of-thorns starfish on the Great Barrier Reef. Endeavour 6:10-14. http://dx.doi.org/10.1016/0160-9327(82)90004-7

GARCIA, T.M., MATTHEWS-CASCON, H. & FRANKLIN-JUNIOR, W. 2008. Macrofauna associated with branching fire coral *Millepora alcicornis* (Cnidaria: Hydrozoa). Thalassas 24:11-19.

GARCIA, T.M., MATTHEWS-CASCON, H. & FRANKLIN-JUNIOR, W. 2009. *Millepora alcicornis* (Cnidaria: Hydrozoa) as substrate for benthic fauna. Braz. J. Oceanogr. 57:153-155.

LEWIS, J.B. & CROOKS, R.E. 1996. Foraging cycles of the amphinomid polychaete *Hermodice carunculata* preying on the calcareous hydrozoan *Millepora complanata*. B. Mar. Sci. 58:853-857.

LIZAMA, J. & BLANQUET, R.S. 1975. Predation on sea anemones by the amphinomid polychaete, *Hermodice carunculata*. B. Mar. Sci. 25:442-443.

MARSDEN, J.R. 1962. A coral eating polychaete. Nature 193:598. http://dx.doi.org/10.1038/193598a0

MARSDEN, J.R. 1963a. A preliminary report on digestive enzymes of *Hermodice carunculata*. Can. J. Zoolog. 41:159-164. http://dx.doi.org/10.1139/z63-019

MARSDEN, J.R. 1963b. The digestive tract of *Hermodice carunculata* (Pallas) Polychaeta: Amphinomidae. Can. J. Zoolog. 41:165-184. http://dx.doi.org/10.1139/z63-020

MARSDEN, J.R. 1968. Routes of excretion of particulate waste in the polychaete, *Hermodice carunculata*. Can. J. Zoolog. 46:619-624. http://dx.doi.org/10.1139/z68-088

OTT, B. & LEWIS, J.B. 1972. The importance of the gastropod Coralliophila abbreviata (Lamarck) and the polychaete *Hermodice carunculata* (Pallas) as coral reef predators. Can. J. Zool. 50:1651-1656. http://dx.doi.org/10.1139/z72-217

SOUZA, J.R.B., RODRIGUES, H.A, NEVES, B.M. & PÉREZ C.D. 2007. First report of bristleworm predator of the reef octocoral *Carijoa riisei*. Coral Reef. 26:1033. http://dx.doi.org/10.1007/s00338-007-0290-2

WITMAN, J.D. 1988. Effects of predation by the fireworm *Hermodice carunculata* on Milleporid hydrocorals. B. Mar. Sci. 42:446-458.

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