New records of the deep-sea fireworm *Chloeia kudenovi* Barroso & Paiva, 2011 (Polychaeta: Amphinomidae) from Southwestern Atlantic

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**Abstract:** The specimens of *Chloeia kudenovi* were collected in mud bottom at a depth of 180 m on the continental slope in the State of Rio Grande do Norte (Potiguar Basin) in Northeastern Brazil. This record expands the northern distribution of *C. kudenovi* in Brazilian waters, which this species has been recorded only in the coast of Rio de Janeiro.

**Key words:** Second find, endemic species, geographical distribution, Northeastern Brazil.

**Polychaeta of the family Amphinomidae** Lamarck, 1818 are commonly known as fireworms due to the burning sensation and irritation they cause upon contact with their calcareous chaetae (de León-González et al. 2009) that have a complex mixture of defense toxins (e.g. proteolytic enzymes, protease inhibitors and neurotoxins) (Verdes et al. 2017). Amphinomidae has 180 species belonging to 22 genera (Borda et al. 2012; Sun & Li 2016; Barroso et al. 2017), with a widespread distribution, occurring from intertidal zones (coral reef) to deep waters in mud and gravel bottom (Kudenov 1993; Barroso & Paiva 2011; Sun & Li 2016; Assis et al. 2017). Most amphinomids are predators with some species showing carnivorous and opportunistic feeding habit (Fauchald & Jumars 1979).

The genus *Chloeia* Lamarck, 1818 is composed by 20 species occurring in the Indian, Pacific and Atlantic oceans (Hartman 1959; Barroso & Paiva 2011). In the Brazilian coast three species have been recorded: *Chloeia viridis* occurring from Amazonas to Rio de Janeiro (Amaral & Nonato 1994; Amaral et al. 2012), *Chloeia pinnata* in Paraiba (Assis et al. 2012) and *Chloeia kudenovi*, 2011 in Rio de Janeiro (Barroso & Paiva 2011). Here, we report the second record of *C. kudenovi* from Brazilian coast, expanding the geographic and bathymetric distribution of the species.

The samples were collected as part of the monitoring program “Avaliação da Biota Bentônica e Planctônica da Bacia Potiguar e Ceará (Bpot)”, developed by the Brazilian Oil Company “Petróleo Brasileiro S/A (Petrobras)”, on board of R/V Seward Johnson in May 2011, off the coast of the States of Ceará (CE) and Rio Grande do Norte (RN) (Potiguar Basin). Samples were taken along the continental slope, using a box core (50x50 cm) at depths ranging from 150 to 2068 m. After collection samples were fixed in saline formalin 4% and thereafter the polychaetes were identified to species level. The specimens were measured with a digital caliper (0.01 mm) at Total length (TL) and Total width (TW).
- width of segment 13). After measurements all specimens were deposited in the "Museu de Oceanografia Prof. Petrônio Alves Coelho (MOUFPE)" at Federal University of Pernambuco, Recife, Brazil.

Three specimens of *Chloeia kudenovi* (Fig. 1 A – D) were collected at station MT# 52 (04°44'S; 036°25'W) at depth of 180 m in mud bottom (voucher number MOUFPE: 002). The specimens have: 25 mm TL and 7 mm TW, 28 chaetigers; 23 mm TL and 6 mm TW, 28 chaetigers; 22 mm TL and 6 mm TW, 27 chaetigers.

All specimens agree with the diagnosis provided by Barroso & Paiva (2011) for *C. kudenovi*: Absence of dorsal pigmentation pattern (Fig. 1A). Prostomium with two lateral cirriform antennae (Fig. 1D).

Despite of the general agreement with the description of Barroso & Paiva (2011) clay *C. kudenovi* clove, our specimens generally had more segments than the specimens examined by these authors (17-24 chaetigers in the original description and 27-28 chaetigers in our specimens). This
difference in the number of chaetigers may be due to the fact that the specimens from Potiguar basin are larger than those from Rio de Janeiro. Some polychaetes have a fixed number of segments, with cessation of post-embryonic segment addition (e.g. Arenicola marina and Harmothoe imbricate), but in most species segments continue to be added throughout the life (Glassby 2000; Bely 2006). New segments are derived during growth along the anterior edge of the pigydium (Schroeder & Hermans, 1975). In some species the number of chaetigers have a strong correlation with the length (number of segments) of the animal, as observed for Paramphinome posterobranchiata (Barroso & Paiva, 2008), Eurythoe complanata (Yáñez-river & Brown,2015) and Timarette punctata (Çinar, 2007).

The closest species of C. kudenovi is Chloea violacea Horst, 1910, however, these species differ from each other in the following way: the median and lateral antennae shorter (not reaching the end of the caruncle) and do not present a specific pattern of body pigmentation, both characteristics are present only in C. kudenovi (Barroso & Paiva 2011). In Brazil Chloea kudenovi was recorded only in Rio de Janeiro (type locality) at depths ranging from 750 to 1045 m (Barroso & Paiva 2011), herein, our specimens were collected in Rio Grande do Norte at depth of 180 m, thereby, we increase the bathymetric distribution (toward shallow water) and expand the geographic distribution of the species on the Brazilian coast (Potiguar Basin - Northeastern Brazil).

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