

## First record of *Cleantioides verecundus* Kensley & Clark, 1998 (Isopoda:Valvifera: Holognathidae) from South Atlantic

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### ABSTRACT

The isopods belonging the genus *Cleantioides* Kensley & Kaufman, 1978 are the most representative into the family Holognathidae Thomson, 1904, which currently contain 13 described species occurring in eastern and northern Pacific, Caribbean, central eastern Atlantic, south Atlantic and South Africa. Despite the broad distribution of the genus around the world, only two species *Cleantioides planicauda* Benedict, 1899 and *Cleantioides occidentalis* (Richardson, 1899) have been recorded from South Atlantic, only *C. planicauda* has its occurrence in southern Brazilian waters (State of São Paulo). In addition, the species of *C. verecundus* Kensley & Clark, 1998 was recorded only for the type location (Key Largo, Flórida). Based on that, in this paper, we report the first record of *C. verecundus* to South Atlantic in Brazilian waters (State of Pernambuco). In this way, the new record of this species contributes to the enrichment of the fauna of Brazilian crustaceans, based on that, we provide the second world record and the first in the south Atlantic, increase its distribution by 6.169 km from the type location. This record increases the number of species of this genus from Brazilian waters (two recorded species) and three from South Atlantic.

**Keywords:** Brazil; Pernambuco; South America; Macroalgae.

### Primeiro registro de *Cleantioides verecundus* Kensley & Clark, 1998 (Isopoda:Valvifera: Holognathidae) para o Atlântico Sul

### RESUMO

Os isópodes pertencentes ao gênero *Cleantioides* Kensley & Kaufman, 1978 são os mais representativos da família Holognathidae Thomson, 1904, que atualmente contém 13 espécies descritas que ocorrem no leste e norte do Pacífico, Caribe, Atlântico leste central, Atlântico Sul e África do Sul. Apesar da ampla distribuição do gênero em todo o mundo, apenas duas espécies *Cleantioides planicauda* Benedict, 1899 e *Cleantioides occidentalis* (Richardson, 1899) foram registradas no Atlântico Sul, apenas *C. planicauda* ocorre em águas do sul do Brasil (Estado de São Paulo). Além disso, a espécie *C. verecundus* Kensley & Clark, 1998 possui apenas registro para a sua localidade- tipo (Key Largo, Flórida). Com base nisso, relatamos o primeiro registro de *C. verecundus* no Atlântico Sul em águas brasileiras (Estado de Pernambuco). Dessa forma, o novo registro desta espécie contribui para o enriquecimento da fauna de crustáceos brasileiros, com base nisso, fornecemos o segundo registro mundial e o primeiro no sul do Atlântico, aumentando a distribuição em 6,169 km do local-tipo. Esse registro aumenta o número de espécies deste gênero nas águas brasileiras (duas espécies registradas) e três do Atlântico Sul.

**Palavras-chaves:** Brasil, Pernambuco, América do Sul, Macroalga.

The family Holognathidae Thomson, 1904 contain five genera, being the genus *Cleantioides* Kensley & Kaufman, 1978 the most representative in number of species, with currently 13 described species: *Cleantioides albaniensis* Poore & LewTon, 1990; *C. bruscai* (Kensley, 1987); *C. carpentaria* Poore, 2012; *C. emarginata* Kwon & Kim, 1992; *C. japonica* (Richardson, 1912); *C. natalensis* (Barnard, 1925); *C. occidentalis* (Richardson, 1899); *C. planicauda* (Benedict, 1899); *C. poorei* Kwon & Kim, 1992; *C. rotundata* (Kussakin, 1982), *C. striata* Poore & Lew Ton, 1990, *C. verecundus* Kensley & Clark, 1998 and *C. vonprahl* Ramos & Rios, 1988.

According to Kensley & Kaufman (1978) this genus is characterized by the absence of the uropodal exopod (one ramus only) and antennae 1 and 2 with clavate flagella, evident as a minute article much smaller than peduncle article 3 of antenna 1. The species of the genus *Cleantioides* are known from the Caribbean, Central Eastern Atlantic and South Atlantic, South Africa, Eastern and Northern Pacific (LIU; POORE, 2013). In South Atlantic, only *C. occidentalis* and *C. planicauda* is recorded. However, *C. planicauda* is the only species recorded in South-east cost of Brazil (State of São Paulo) (LIU; POORE, 2013).

The species of *Cleantioides verecundus* differs from others

species by the structure of the subcircular part of the pleotelson with two sub-median longitudinal ridges, this is species has been recorded only in type locality (Florida – USA), found on *Thalassia* rizhome fragments, with only one specimen described, additional sampling efforts at the type locality, However, no specimens were found by Kensley & Clark (1998). Thus, in this paper, we report the first record of *C. verecundus* from South Atlantic (Brazilian waters) and increase the distributional knowledge of this species.

The material examined was collected associated with macroalgae bank on beach rock in intertidal zones at Boa Viagem beach, Pernambuco- Brazil (8°11.81' S; 34° 89.32' W). In the laboratory, the specimens were identified following Kensley & Clark (1998). Photographs and measures were made under stereomicroscopy. In the geographic distribution section, the new record in bold. The specimen of *C. verecundus* was deposited in the Carcinological Collection of the "Museu de Oceanografia Prof. Petrônio Alves Coelho (MOUFPE)", in the "Universidade Federal de Pernambuco", Recife, Pernambuco, Brazil.

*Cleantioides verecundus* Kensley & Clark (1998), Pages: 114-119, figs- 1-3; – Liu & Poore (2013), Page: 626 (in list).

Material examined - 01 Male (TL: 15.0 mm), Boa Viagem Beach, December 2017, associated to *Palisada perforata* (Bory) K. W. Nam 2007, in low tide, 0.3m. MOUFPE -19.991.

Distribution - USA (Key Largo, Florida), **South Atlantic: Brazil – Pernambuco (Boa Viagem Beach)** (figure 1).

Only two species have been recorded in South Atlantic: *C. occidentalis* observed by Carvacho (1983), Müller (1988) and Kensley & Clark (1998) in Atlantic Colombia and *C. planicauda* (KENSLEY; SCHOTTE, 1994; LIU; POORE, 2013) recorded from southern Brazil (State of São Paulo). The specimen did not vary from the original description. *C. verecundus* can be easily distinguished from the others species by the presence of two sub-median longitudinal ridges (figure 2) versus unadorned in *C. planicauda* and differentiates by had *C. occidentalis* two broadly rounded sub-median lobes in pleotelson, for more comparative figures see Kensley & Clark (1998).

The species of *C. verecundus* was found associated to macroalgae *P. perforata* in Boa Viagem beach habitat different when compared with the type species which was collected in *Thalassia* Banks ex König, 1802 roots adjacent with mangrove in Florida, although several authors report that genus live specialized habitat of hollow seagrass stems (RAMOS; RÍOS, 1988; SONG; MIN, 2016; NUNOMURA et al, 2017), but Ortiz & Lalana (2018) collected *C. planicauda* associated to macroalgae *Laurencia* sp. J. V. Lamouroux, 1813, and Song et al (2014) collected same species on sandy and gravel bottom associated to green algae at 3-4 m of depth.

Probably the absence of previous records of *C. verecundus* in South Atlantic can be due to its niche and ecological habitat being different from the common species in intertidal regions. As the species from this genus usually builds tubes or living in cracks in the stems of some species of seagrass, being rarely found in association with macroalgae. In this way, the new record of this species contributes to the enrichment of the fauna of Brazilian crustaceans, based on that, we provide the second world record and the first in the south Atlantic, increase its distribution by 6.169 km from the type location. This record increases the number of species of this genus from Brazilian waters (two recorded species) and three from South Atlantic.



Figure 1. Map of geographic distribution of *Cleantioides verecundus* Kensley & Clark, 1998 in Atlantic Ocean. Black circle previous record and red circle new record.

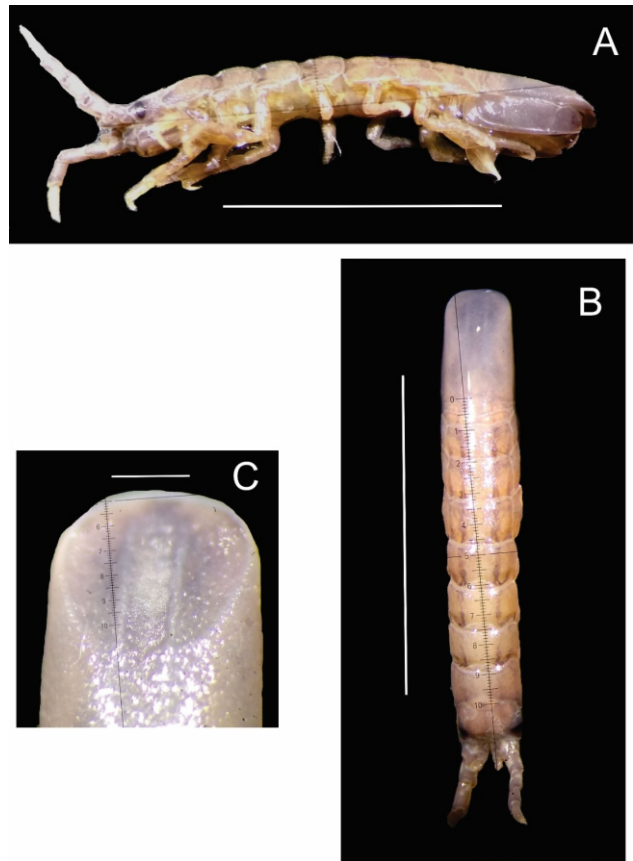


Figure 2. *Cleantioides verecundus* Kensley & Clark, 1998 Male (TL: 15.0 mm) collected associated with *Palisada perforata* (Bory) K. W. Nam 2007, in low tide, 0.3m. A- lateral view of *C. verecundus*; B -Dorsal view; C- Pleotelson. In Boa Viagem Beach, Pernambuco, Brazil; on Rodophyta, December 2017. MOUFPE -19.991

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