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A new species of *Krampella* (Hydrozoa, Hydroidomedusae, Tiarannidae) from the deep waters of Antikythira Strait (Cretan Sea, North East Mediterranean)*

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SUMMARY: A new species of Leptomedusa, *Krampella tardenti* is described from the deep waters of Antikythira Strait. The systematic position of the genus *Krampella* is precised.

Key words: Krampella, systematic position, Hydroidomedusae, Crete, Mediterranean.

RESUMEN: DESCRIPCIÓN DE UNA NUEVA ESPECIE DE *KRAMPELLA* (HYDROZOA, HYDROIDOMEDUSAE, TIARANNIDAE) RECOLECTADA EN AGUAS PROFUNDAS DEL ESTRECHO DE ANTIKYTHIRA (MAR DE CRETA, MEDITERRÁNEO NORORIENTAL). – Se describe una nueva especie de Leptomedusa, *Krampella tardenti* a partir de ejemplares recolectados en aguas profundas del estrecho de Antikythira. Al mismo tiempo se discute la posición sistemhtica del género *Krampella* .

Palabras clave: *Krampella,* posicidn sistemhtica, Hidroidomedusae, Creta, Mediterrhneo.

INTRODUCTION

Under the auspices of the PELAGOS European Project, several moorings equipped with sediment traps were deployed in the Antikythira Strait (North East Mediterranean). The main objective of this project was to study particle **flux** transferred from the continental shelf to the continental slope through this strait. In addition to the sediment particles, medusae were the most important group of macroorganisms collected by the traps. Nearly one hundred specimens of a single undescribed hydroidomedusa were collected, comprising most of the medusae sampled, and are discussed here.

The closest relative to this new species appears to be *Krampella dubia,* described by Russell, 1957, from a unique damaged specimen, found in deep waters of the English Channel. A second specimen was found in the Mediterranean waters, between 600 and 300 m depth and briefly described by Goy (1972); two specimens were found in the Adriatic by Schmidt and Benovic (1977). The characters of *K. dubia* are the following (Russell, 1957, 1970, Goy 1972): Umbrella hemispherical, 4.0 mm high, 4.5 mm wide; jelly

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moderately thick. Stomach possibly in form of open cross with mouth lips extending along each arm. Four radial canals broad. About sixteen fine strands of tissue connecting walls of radial canals with exumbrella surface. No marginal vesicles, cordyli or ocelli seen. Gonads along nearly whole length or the 2/3 of radial canals, divided longitudinally. Four perradial and four interradial marginal tentacles each with conical basal bulb. Three to six small marginal cirrus-like tentacles between each pair of marginal tentacles. Yellowish brown pigment on parts of gonads and on what appear to be the mouth lips. Cnidocysts of two types, the larger ones, 17 µm long undischarged appear to be atrichous haplonemes and the smaller ones, about 9 µm long undischarged is a microbasic mastigophores. The Cretan species differs from *Krampella dubia* by several characters and a new species has to be erected .

MATERIAL AND METHODS

The mooring line supporting a PPS3 sediment trap was deployed on the Antikythira Strait (Cretan Sea, North East Mediterranean) in 1000 m depth. The material studied was collected from 1 to 15 June 1994. Sediment traps collect swimmers that enter the sample containers and die instantly because of the formaldehyde. Gelatinous organisms were preserved in excellent conditions and were immediately separated from the rest to carry out taxonomic studies

Material examined: *Krampella dubia,* one damaged specimen from deep water, male, mouth of the English Channel. Holotype BM 1957. 5.8.1. 47°03'N, 5" 47' W; one complete specimen from the Azores: Chelsea college, Azores, 1965/21/08/65: St Dipyid Sp BM 1986.1.3.11 (this specimen does not belong to *K. dubia,* see below).

RESULTS

Krampella tardenti n. sp.
(Figs. 1 and 2)

Type material: Holotype, specimen collected by a sediment trap, sample no. PI-IA1 (PELAGOS Project) off the Antikythira Strait (35" 51' N, 23" 26' W), between 1 and 15 June 1994, 1000 m depth and deposited in the Institut de Ciències del Mar (ICM-CSIC) (Barcelona), Cnidarian Collection, Reg. LEP 0018-1. Four paratypes, also deposited in the ICM collections, labelled LEP 0018-2. Part of the collection has been deposited in the "Institut Royal des Sciences Naturelles de Belgique" under the registration number IG 27838. In total, 96 specimens were collected.

Etymology: This species is dedicated to the late Professor Pierre Tardent in honour of his long career and oustanding work in hydrozoan biology.

Species diagnosis: Manubrium quadrate, large, 2/3 of bell height, with four perradial pouches extending almost to circular canal and four interradial bands of red-brown pigment. Radial canal very short, circular canal thin, a narrow marginal ring of cnidocysts. No tissue strands running from radial canals or manubrial pouches to exumbrella. Eight marginal tentacles with conical, elongated bulbs; 2-4 cirrus like tentaculae between successive tentacles. Gonads 8, on lateral walls of the distal ends of the manubrial pouches, longitudinally separated. No sense organs observed. It differs from *K. dubia* by the absence of strands of tissue connecting the radial canals and the exumbrella, by the more distal position of the gonads, by the interradial bands of red brown colour of the manubrium and by the greater number of cnidocysts types.

Species description: Umbrella almost hemispherical, a little wider, 4.5 mm, than high, 4.0 mm, with a slightly conical or rounded apex; mesoglea of uniform thickness. Manubrium large, the 2/3 of the bell height, with a quadrate base extending in four large perradial manubrial pouches and with four interradial bands of red brown colour. Manubrial pouches very wide and long extending, slightly tapering, almost to bell margin. Mouth, simple, quadrate, with four short rounded lips, no oral cnidocyst ring. Four radial canals with very short free end, almost inconspicuous, linking the most distal end of the manubrial pouches to the circular canal which is rather narrow. A narrow marginal ring of cnidocysts containing three types of cnidocysts (see below). No tissue strands running from the outer part of the radial canals or from the manubrial pouches to the exumbrella surface. Eight adradial gonads oval to bean-shaped, sometimes twisted, along the most distal third of the manubrial pouches, one on each of the lateral walls, widely separated longitudinally, internal wall of the gonads flat, external wall rounded. Gonads yellowish, speckled with red pigment which is localized between the eggs in female specimens. Four perradial and four interradial long, hollow, marginal tentacles. Marginal bulbs 8, conical, elongated, identical. Two to four, generally three, marginal solid cirrus-like tentaculae between successive large mar-

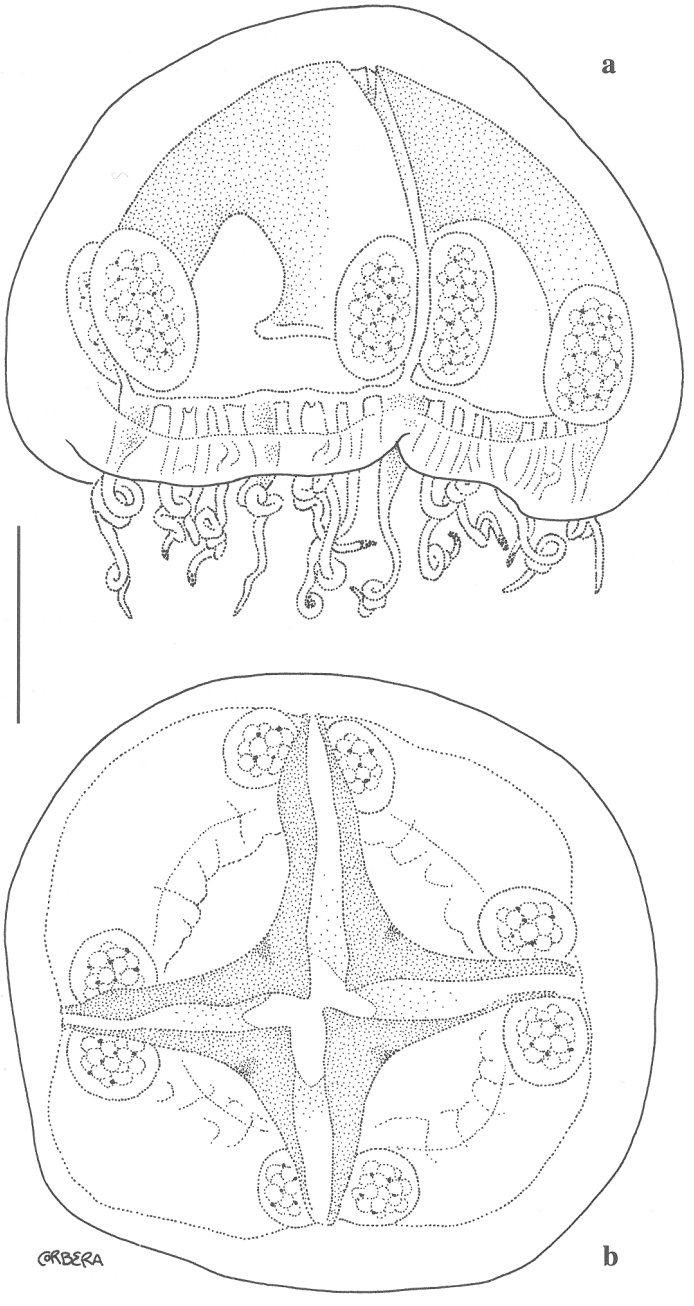

Fig. 1. – *Krampella* ***turdenti*** n. **sp.** a: lateral view, b: **dorsal** view. Scale bar = 1 mm.

ginal tentacles. Tentaculae long, up to 2 times the length of the marginal bulbs, end spirally coiled and terminating in a mass of about 30-50 large cnidocysts. No sense organs (ocelli, marginal vesicles or cordyli) seen. Cnidocysts of four different sizes and shape, only undischarged capsules observed:

1) 10.0 ym x 5.0 µm, ellipsoid, microbasic eutyteles? Found in: the marginal cnidocyst ring, the marginal tentacles and the tentaculae.

2) 5.0 µm x 3.0 ym, banana-shaped, microbasic mastigophores? Found in: the tentaculae, the marginal cnidocyst ring and the marginal tentacles (very abundant).

3) 16.0 µm x 10.0 µm rugby-ball-shaped, atrichous haplonemes? Found in: the enlarged part of the end of the tentaculae, the marginal cnidocyst ring, the marginal tentacles (rare).

4) 7.0 µm x 5.0 ym pyriform, desmonemes? Found in: the tentaculae, the marginal tentacles.

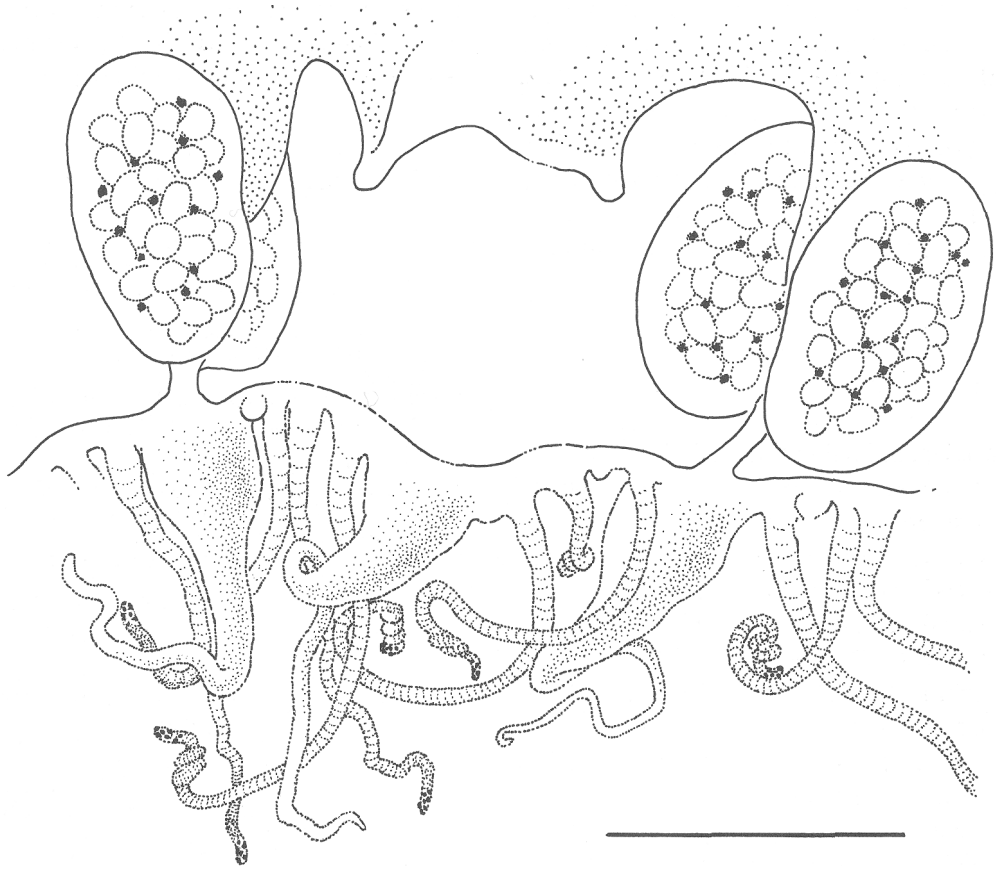

Fig. 2. *Krampella tardenti* n. **sp.** Detail from the exumbrella margin. Scale bar = 1 mm

DISCUSSION

The closest relative of *Krampella tardenti* is doubtless *K. dubia* Russell, 1957. The manubrial open cross described as possibly present in *K. dubia* by Russell (1957) from his unique damaged specimen correspond in fact to the manubrial pouches observed in this new species.

The specimen from the Azores identified as *Krampella dubia* by Baker (1967) does not belong to this species nor even to the genus *Krampella.* This specimen is one mm wide, its manubrium does not possess perradial pouches but passes gradually into the radial canals, which are long and straight. No strands of tissue connecting the walls of the radial canal to the exumbrellar surface are visible. The mouth is simple and quadratic. Large gonads are present, extending almost from the manubrium to the circular canal, they are longitudinally divided by the radial canals. There are four perradial marginal tentacles with large pear-shaped marginal bulbs. Between successive tentacles there are several (4-5?) short marginal structures, some looking like cordyli, but the state of preservation of the specimen does not allow more precise description. At first glance, this specimen seemed assignable to *Krampella tardenti* n. sp. but the youngest specimens of the latter species (1 mm wide) have already manubrial pouches, four to six marginal tentacles with conical bulbs, **3-4** cirrus like long tentaculae between successive marginal tentacles and no indication of gonads. In our opinion the specimen from Azores Island is 'closest to *Laodicea minuscula* Vannucci, 1957 from Brazil.

The diagnosis of the genus *Krampella* must be slightly modified to accommodate the present observations as follows: Medusae with manubrium having four perradial manubrial pouches extending almost to circular canal; gonads on manubrial pouches, widely separated longitudinally; eight marginal tentacles, up to five cirrus-like tentaculae between successive marginal tentacles.

As underlined by Russell (1957) the systematic position of *Krampella* is problematical. The majori-

ty of authors followed Russell's proposal and put this genus tentatively in the Laodiceidae (Russell, 1957, 1970; Kramp 1959, 1961; Goy, 1972; Bouillon, 1985, 1995). The presence of manubrial pouches, the position of the gonads on those pouches and the possible presence of desmonemes and microbasic euryteles suggest however more closer affinities with the Tiarannidae (see for instance Pagbs *et al.*, 1991 and Pagbs *et al.*, 1992).

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