

Eucheilota menoni Kramp 1959 (Cnidaria: Hydrozoa: Lovenellidae), an Indo-Pacific species new to the Atlantic fauna from the Bay of Biscay (north of Spain)

Álvaro Altuna

INSUB, Museo de Okendo, Zemoría 12, Apdo. 3223, 20013, San Sebastián, Spain

E-mail: altuna.alv@euskalnet.net

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Abstract

The Indo-Pacific hydrozoan *Eucheilota menoni* Kramp 1959 (Cnidaria: Hydrozoa: Lovenellidae) is recorded from the Basque coast (Bay of Biscay, Spain, northeastern Atlantic). This is the first record of the species from the Atlantic. Polyps of the species, previously unknown to science, were discovered on the floating docks of a fishing harbour, and colonies were releasing medusae at the time of collection. The species has been introduced to the Iberian Peninsula very likely by ship fouling, and may soon be discovered in nearby areas including the Mediterranean Sea. Given that the medusa is known from the Red Sea (closest record), it could be a Lessepsian migrant but, despite being an easy-to-recognize medusa, there are no Mediterranean records.

Key words: *Eucheilota menoni*, Hydrozoa, fouling, Indo-Pacific, Spain

Several colonies of a small hydroid referable to *Campalecium* Torrey 1902 were collected during sampling from floating docks of the fishing harbour at Fuenterrabía (Bay of Biscay, Basque Country, Spain) in July 2007 (Figure 1). They were found on fouling species characteristic of the habitat, including the bryozoans *Bugula neritoides* (Linnaeus 1758) and *Scrupocellaria* sp., and the ascidian *Styella clava* Herdman 1881. Waters of the harbour are sheltered and relatively polluted, and a film of dirt and fuel extended over the surface every time the location was visited. Hydroid colonies were fertile at the time of collection and were releasing medusae. The species differs from all known species of *Campalecium*, an infrequently studied genus, although it is closely related to *Campalecium alcoicum* Watson 1993 from Australia. According to Bouillon et al. (2006), three species of *Campalecium* are known worldwide: *Campalecium simplex* (Pictet 1893), *Campalecium medusifera* Torrey 1902, and *C. alcoicum*. The status and systematic position of these species have been the focus of an intensive debate. The shallow, dish-shaped and non-operculated hydrothecae of the hydroid resemble

Halecium Oken 1815 (family Haleciidae Hincks 1868), while affinities of the newly released medusa resemble *Eucheilota* McCrady 1859 (family Lovenellidae Russell 1953) (see Altuna 2008). Few morphological characters exist for identification of the species.

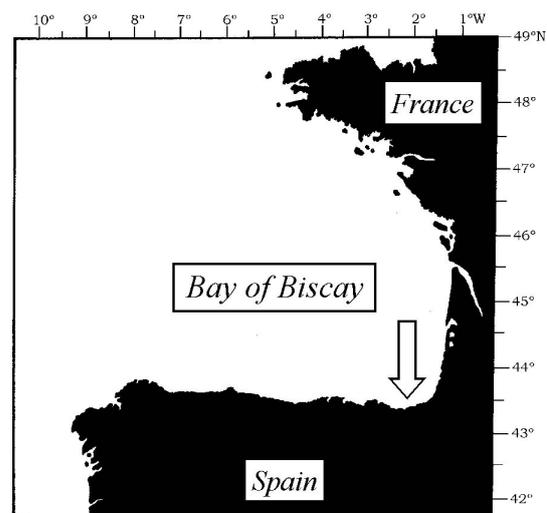


Figure 1. Location of the sampling station (43°23'17.6"N-01°47'26.3"W)

In being a metagenetic species, the undescribed polyp was cultured in the laboratory following procedures in Altuna (2008). Liberated medusae raised to the adult were identified as *Eucheilota menoni* Kramp 1959 (Figure 2). Analysis of the 16S mitochondrial RNA gene sequence of Basque colonies showed high similarity to that of a medusa of *E. menoni* collected in New Zealand, and differences were not significant enough to consider them different species (Peter Schuchert, com. pers., see methods in Schuchert 2005).

Eucheilota menoni is a neritic hydromedusa first described from material collected by the Galathea expedition at several stations in the Indo-Pacific (Kramp 1959). It is widely distributed in both oceans, with records from both tropical to temperate regions (Kramp 1959, 1968; Vannucci et al. 1970; Schmidt 1973; Bouillon 1978, 1984; Segura-Puertas 1984; Bouillon et al. 1988; Bouillon and Barnett 1999; Fang et al. 2005; Xu and Lin 2006). It is otherwise unknown outside this vast area. Abundance and seasonality of the species from certain areas including the west coast of India (Vannucci et al. 1970), the Chinese Sea (Xu and Lin 2006), and off the Pacific coast of Mexico (Segura-Puertas 1984), are well documented. Nevertheless, the species has been only briefly described, and illustrations of it are few (see Kramp 1959, 1968). The polyp is previously unknown (Bouillon and Barnett 1999). It can be distinguished from other similar species by the thin and tubular hydrophores with the perisarc slightly undulated, the almost straight walls of the hydrothecae scarcely widening to margin (Figure 3), and by the type (microbasic mastigophore), size (24-28 x 5.2-6 µm), and shape (banana-like, with a small projection in one end of the capsule) of the large cnidocysts from the polyps and the gonangia (Figures 4, 5). Four black spots are perceptible in the distal-most medusa buds within the gonothecae (perradial bulbs).

Without doubt the species has recently been introduced to the Bay of Biscay. The polyp is easily cultured and has a high tolerance to variations in temperature and water quality. Colonies appear healthy even in small jars and without a seawater renewal over several weeks. Vannucci et al. (1970) recorded the medusa in areas of high salinities. Hydroid colonies studied here grew profusely in jars and formed abundant gonangia over a wide range of temperatures, releasing medusae by the hundreds. Its occur-

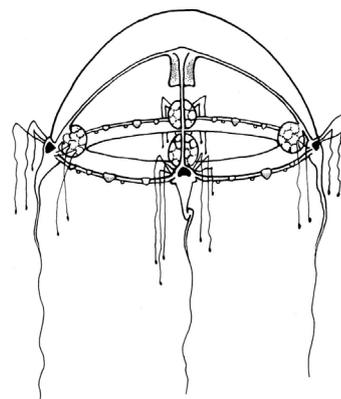


Figure 2. *Eucheilota menoni* Kramp 1959. A 50-day-old female medusa reared in the laboratory. Perradial bulbs have a prominent black spot; lateral walls of manubrium and interradial thickenings are also slightly tinted in black. Mature medusae in the cultures have 12-16 statocysts (*Lovenella* Hincks 1868), instead of 8 (*Eucheilota* McCrady 1859) as described in the literature. Measurements: 3.7 (width) x 2.8 (height) mm

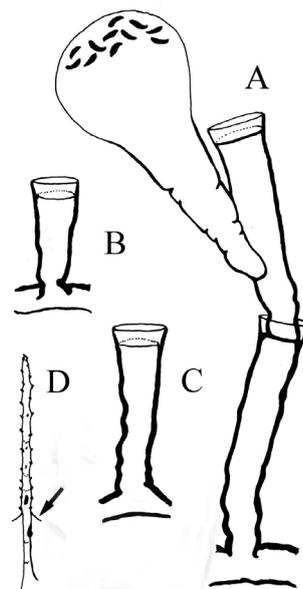


Figure 3. *Eucheilota menoni* Kramp 1959. A) Pedicels and hydrothecae with developing gonangium. Note the accumulation of large banana-like cnidocysts (see Figure 4) in the distal end of the latter. B-C) Pedicels and hydrothecae. D) Tentacle. Arrow shows the intertentacular web. Scale bar: 100 µm (A-C); D) not at scale

rence as a fouling species in a harbour, the easy way in which it reproduces asexually and releases medusae, and its appearance accidentally in jars with cultures of other hydroids, leads me to believe that it will be soon recorded and introduced into nearby areas, including the

Mediterranean Sea. The species was found a second time in later samplings from the same station (December 2007), but it has not yet been discovered in nearby areas outside the harbour. I anticipate imminent discoveries of the medusa in the Bay of Biscay or the Iberian Peninsula plankton.

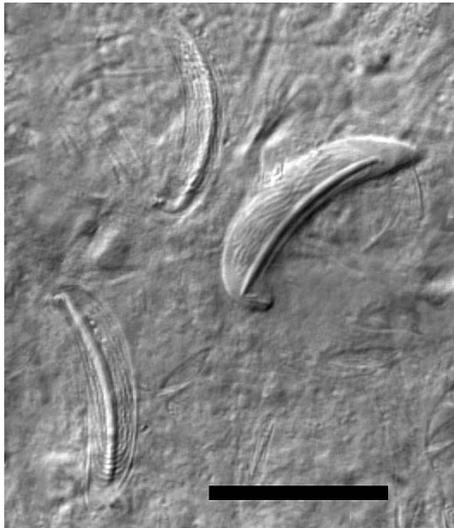


Figure 4. *Eucheilota menoni* Kramp 1959. Unfired large bananacyst-like cnidocysts (microbasic mastigophores) from the polyp. Note the prominent shaft, and the small projection in one end of the capsule. Scale bar: 20 μ m

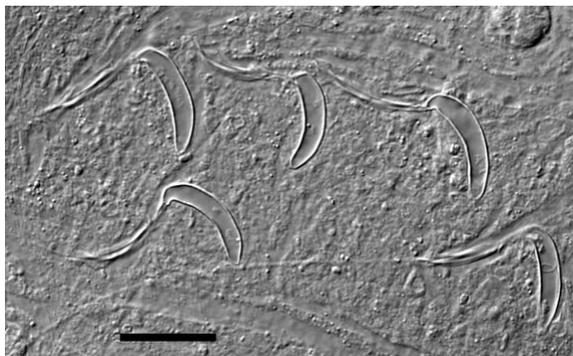


Figure 5. *Eucheilota menoni* Kramp 1959. Fired large cnidocysts (microbasic mastigophores) from the polyp. Scale bar: 20 μ m

How this species reached the Bay of Biscay is not known, although the most likely explanation is by ship fouling or in ballast water. The harbour where the hydroid was collected is unlikely the place of initial introduction to Europe, because ships there fish only in the Bay of Biscay and nearby areas. Such vessels are unlikely the introduction vectors for this species.

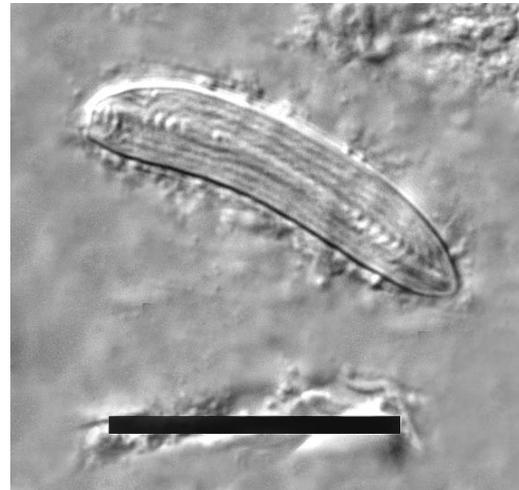


Figure 6. *Eucheilota medusifera* ? (Torrey 1902). Unfired large cnidocyst (merotrichous haploneme) from the polyp. This is an occasional hydroid from the Mediterranean and the Iberian Peninsula that should not be confused with *Eucheilota menoni*. Identification of the cnidome is required to distinguish both species. Scale bar: 20 μ m

The medusa occurs in the West Indian Ocean along the coasts of East Africa (Bouillon 1978). It was neither collected from the southwest continental shelf of Africa (Pagès et al. 1992), nor mentioned in a thorough and long-term study of the temperate southwestern Atlantic Ocean hydromedusae fauna (Genzano et al. 2008). The closest record of the medusa is from the Red Sea (Schmidt 1973). The considerable gap in its distribution prompts me to believe that the hydroid did not arrive in the Bay of Biscay step-by-step, but accidentally by long-distance introduction. It may have reached Europe from the Suez Canal as a Lessepsian migrant, or by ships passing through the canal, but no Mediterranean records exist. As stated by Boero et al. (2005) for another alien hydroid, *Clytia linearis* (Thornely 1899), this sea is one of the most studied in the world. It would likely have been recorded if it were present. As a metagenetic species, it could have been recorded either as a distinctive medusa (recognizable by four prominent black spots in the perradial bulbs, Figure 2) in plankton samples, or as the hydroid (small, easily overlooked) in benthic samples. Subsequent records of the species may answer this question. It is possible that *Eucheilota menoni* may also be expanding in the Indo-Pacific, as it was recorded for the first time from the East Pacific by Segura-Puertas (1984) off

Mexico, Ecuador and Colombia, where, nevertheless, it was a common species.

Eucheilota menoni is an alien hydrozoan new to the Atlantic and European faunas, and future studies may determine whether it will follow a similar pattern of expansion as in other exotic hydroids such as *Clytia linearis* and *C. hummelincki* (Leloup 1935) (see Boero et al. 2005; Gravili et al. 2008). Medusae of these species are not easy to differentiate from other common *Clytia* species. In contrast, the medusa of *Eucheilota menoni* cannot be confused with any other in the northeastern Atlantic or the Mediterranean. Therefore, it is assumed that it will be discovered sooner or later in plankton samples from other parts of Europe. The description of the Bay of Biscay material, and information on the life cycle of the species, will be published elsewhere.

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