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On a beached specimen of *Octopoteuthis sicula* (Cephalopoda: Octopoteuthidae) in the Strait of Messina

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Abstract
In the spring 2005 an alive specimen of *Octopoteuthis sicula* Rüppell, 1844 was found beached at Punta Faro (Strait of Messina, Mediterranean Sea). Description and photographs of this specimen, together with information on the taxon, are reported in this paper.

Riassunto
Nella primavera 2005 si rinveniva spiaggiato vivente un cefalopode ascrivibile per le sue peculiari caratteristiche al genere *Octopoteuthis* Rüppell, 1844. Dalle caratteristiche morfologiche, che rispecchiavano perfettamente la descrizione originale della specie, e a seguito della comparazione con le specie congeneri illustrate in letteratura, si classificava l'individuo come *Octopoteuthis sicula* Rüppell, 1844. Si forniscono alcune notizie sul taxon, una descrizione e foto dell'esemplare.

Key words
Cephalopoda, *Octopoteuthis sicula*, Mediterranean, Strait of Messina, washed ashore.

Introduction

The Strait of Messina has been known since Homeric times for its powerful tidal currents which alternatively flow southwards and northwards. The latter causes an upwelling of deep waters, which carries bathyal organisms towards the surface and traps them between the water eddies caused by the current. Under particular meteomarine conditions, as when the *scirocco*, a south-easterly wind, blows, these organisms are dragged and beached along the north coast of Messina, east side of the Strait. This phenomenon is well known to the scientific community. Mazzarelli (1909) published a systematic study of the species living in deep waters and beached in the Strait of Messina. Cephalopods of the Strait have been dealt with by Berdar et al. (1983), with an exhaustive historical and bibliographical review. The finding of a specimen of *Octopoteuthis sicula* Rüppell, 1844 (Teuthida: Octopoteuthidae) stranded on the Sicilian coast of the Strait is documented in the paper by Berdar et al. (1983).

The *Octopoteuthis* genus is characterised by the absence of tentacles in subadults and adults; the tentacles are present in the juvenile stages and are gradually lost during the ontogenetic development.

The taxonomic history of this species is controversial and, in our opinion, not yet completely clarified. We believe that much of the taxonomic confusion and identification discrepancies results from the fact that the original description of *O. sicula* is reported in a letter, written in Italian and sent by Rüppell to Cocco in 1844. In the same year this letter, containing the description of the relevant species, was submitted for publication to the scientific magazine *Giornale del Gabinetto Letterario di Messina*, previously named *Il Maurolico*, published in Messina. This magazine had a brief life and was almost unknown to the contemporary naturalists. According to Rüppell (1844), the actual discoverer of this new cephalopod species was Krohn, a zoologist also operating in Messina. Krohn (1845) ascribed this species to the genus *Octopodoteuthis* [sic!] Rüppell, 1844, but later he transferred it to his newly established genus *Veranya* (Krohn, 1847). Such a taxonomic error became repeated in all subsequent literature until Roper et al. (1969) corrected it. Verany (1851) contains a description of this species, whereas the magazine name is wrongly quoted, viz. *Giornale di Gabinetto di Messina* [sic!]; also the publication date is wrongly cited. Most subsequent authors knew this species thanks to Verany's work and therefore their references to the original Rüppell's paper contain the wrong magazine name and/or publication date – e.g. Jatta (1896) in his description of a specimen kept in the Zoological Station in Naples erroneously mentioned the year 1845 as the species publication date. In order to avoid such discrepancies, Ficalbi (1899) re-published Rüppell's full original article with an interesting foreword.

Pfeffer (1912) considered two forms of *O. sicula*: a Mediterranean one and an Atlantic one; he did not mention the presence of any photophores. Grimpe (1922) reported two subspecies, namely *Octopodoteuthis sicula mediterranea*, and *Octopodoteuthis sicula atlantica*, without any valid description; therefore these *taxa* were considered *nomina nuda*. Naef (1923) summarised the available information on this species and described it exhaustively, however maintaining its nomenclatural status unchanged.

Roper et al. (1969) in their illustrated key of the Cephalopoda families put a definitive firm point on the taxonomy of the species.

Young (1972) and Young et al. (1999) consider *O. sicula* a valid species but mention the presence of photophores on the mantle of oceanic specimens, which indeed *O.*

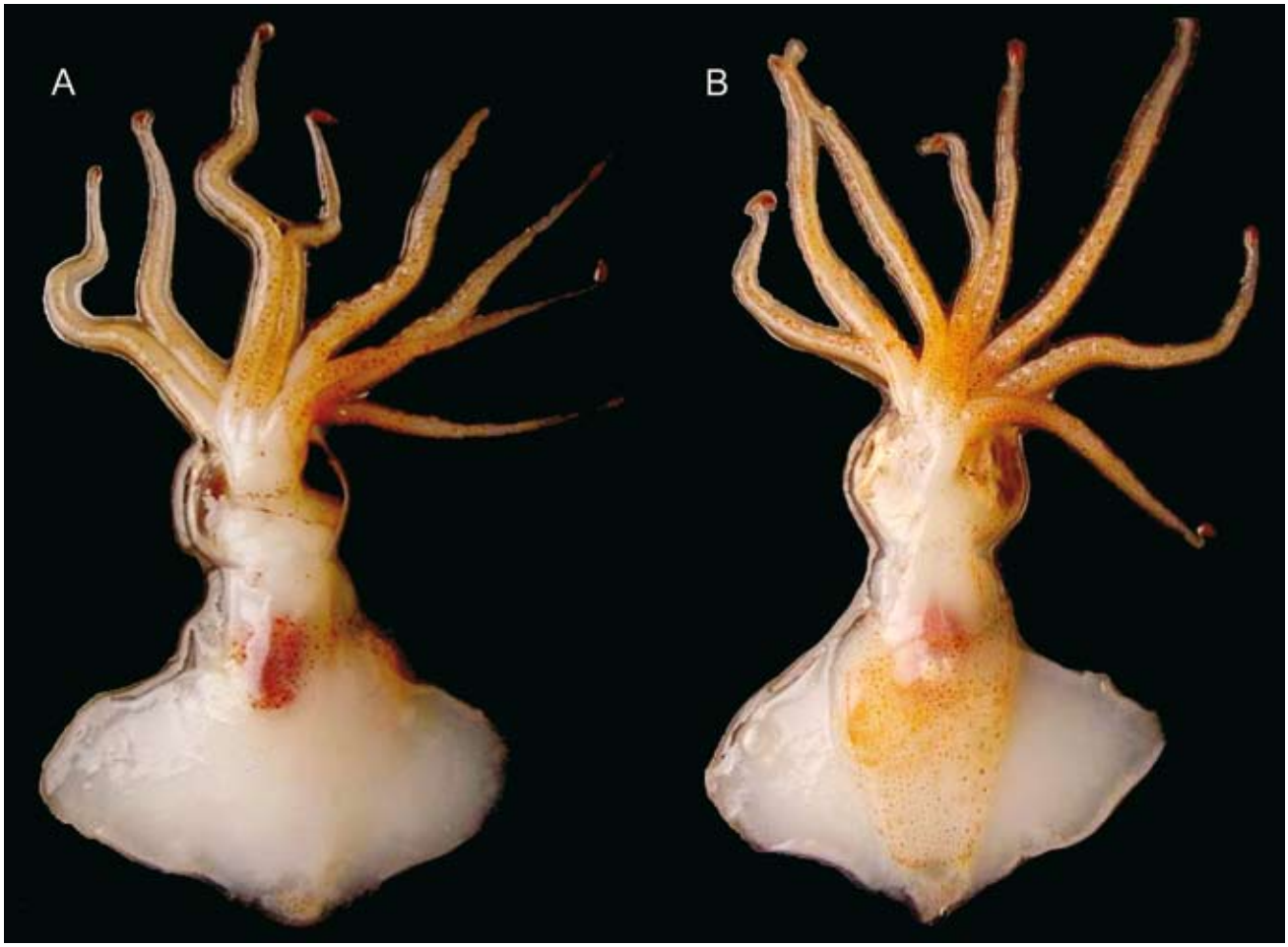

Fig. 1. *Octopoteuthis sicula*, ML = 30 mm. **A**. dorsal view. **B**. Ventral view.

Fig. 1. *Octopoteuthis sicula*, ML = 30 mm. **A**. Vista dorsale. **B**. Vista ventrale.

sicula does not possess. Such a fact casts some doubts on their diagnoses.

Material and methods

The violent south-easterly wind (the *scirocco*) and following calms that characterized the last days of March and the beginning of April 2005 caused the beaching of many bathypelagic species of different phyla along the Sicilian coast of the Strait of Messina. Among them, the specimen dealt with herein was found still alive on the 22 April 2005, two days before full moon, on the beach of Capo Faro (12 km North of Messina), with calm sea and wind and a northward current.

The squid was photographed after death, before fixation in 5% formalin. The fixation caused the rapid loss of the specimen's natural colours, and this strengthens the importance of the images in the present paper. The sample is kept in the junior author's private collection.

Results

The specimen's total length is 92 mm, mantle length 30 mm, and fin width 48 mm (**Fig. 1**). The animal body has a delicate consistency; it is gelatinous, but not flabby, hyaline and pinkish-white coloured. The mantle is fairly separate from the head and provided with wide rhomboidal fins, whose tissues are firmer than the mantle. The fins have rounded edges and are attached to the mantle without discontinuity, corresponding to type "C" fin attachment of Young et al. (1999). The fins stretch in length more than two thirds of the mantle length. The mantle is conical in profile, fairly bulgy in the central part and ends with a point that extends a little beyond the fins; it is transparent so that internal organs may be seen through it. The head is round and its sides are almost completely occupied by the large oculars bulbs. The round and globular eyes display an iridescent, dark violet colour. The small cutaneous prolongation mentioned by Rüppell (1844) is just detectable. The eight arms have two rows of small hooks, covered by a muscular hood and with intense-red cromatophores on the tip. No interbrachial membrane is present. All arms have the same profile; the dorsal and ventral ones are shorter than the other four, the brachial formula is: II = III > I = IV. The buccal opening is notably large and surrounded by a membrane. The siphon is conical and slightly projecting from the mantle. The whole squid body, except the fins, is covered by very evident red-brownish cromatophores.

The Capo Faro specimen's morphological characteristics perfectly fit the original description of *Octopoteuthis sicula*. In addition, the descriptions of other *Octopoteuthis*

species available in the literature allowed us to ascribe our squid to *O. sicula*.

We report hereafter Rüppell's (1844) original description: "*Essa ha sotto l'orbita un piccolo prolungamento cutaneo carneo, trenta paja di uncinetti in serie alternate sopra ciascun tentacolo. Il colore dell'animale vivente è roseo-jalino, l'estremità dei tentacoli son rosse intense. Nell'animale moribondo i cromofori producono sopra tutta la superfice molte macchiette rosso-giallastre. La lunghezza totale del corpo e de' tentacoli è di due pollici e mezzo, e la massima larghezza trasversale della natatoia è di quindici linee.*" Translation: "[The squid] has a small cutaneous prolongation below the orbit, thirty pairs of small hooks in alternate series, along each arm. The colour of the living animal is pinkish-hyaline, the arm tips are intensely red. In the dying animal the chromatophores produce over the whole body many red-yellowish spots. The total length of the body and arms is two and a half inches and the maximum transversal width of the fins is fifteen lines". One line is 1/16 of an inch and thus is equivalent to 1.60 mm in the Decimal Metric System. One inch is equivalent to 25.4 mm. Therefore, the overall length of Rüppell's specimen was 63.5 mm.

Discussion

As reported in Results, the overall somatic characteristics of our specimen perfectly fit the original description of *Octopoteuthis sicula*, the only species of this genus reported in the Mediterranean Sea (Bello, 1986 and 2003). On the contrary, the specimen does not show the photophores indicated by Young (1972) and Young et al. (1999) for the Atlantic specimens of the same putative species. Hence we tend to believe that the species *Octopoteuthis* sp. A of Young (1972), deemed a synonym of *O. sicula* by this author, belongs indeed to another species.

Following the old findings reported by Rüppell (1844), Krohn (1845), and Pfeffer (1912), the finding of a juvenile specimen was reported in the Strait of Messina by Berdar et al. (1983). *Octopoteuthis sicula* has been collected in the Sicily Channel at 630-680 m depth (Jereb & Ragonese, 1990). To our knowledge, the last finding in Mediterranean Sea is that reported by D'Onghia et al. (1996) for the Calabrian coast of the Ionian Sea. Clarke (1966) in his synopsis provides a list of the captures up to 1966 and confirms the need to clarify the genus status.

Most Mediterranean records of this cephalopod refer either to juveniles or incomplete specimens, i.e. lacking some anatomical parts, because of the fragility of the tissues. The present finding is particularly interesting because it allowed the observation of the complete morphology as well as the colour of a living animal. Other photographs and updated information are found in Young et al. (1999).

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