



## Research paper

# The genus *Condyloderes* (Kinorhyncha: Cyclorhagida) in the Mediterranean Sea, including the description of two new species with novel characters<sup>☆</sup>

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## ABSTRACT

Two new species of Kinorhyncha belonging to the genus *Condyloderes* (Cyclorhagida: Centroderidae) are described herein. The specimens were collected in the Gulf of Castellammare (Tyrrhenian Sea, Sicily, Southern Italy) and off Livorno (Ligurian Sea, Tuscany, Central Italy), respectively. The new taxa represent the first species of *Condyloderes* described from the Mediterranean basin. *Condyloderes agnetis* sp. nov. is distinguished from its congeners by bearing cuspidate spines on segment 3 – a character never reported before for Cyclorhagida – in subdorsal position, paradorsally and sublaterally on segment 7, an extremely short midterminal spine, and a combination of cuspidate spines in lateral accessory position on segments 2 and 9, ventrolaterally slightly displaced ventromedially on segment 5, and ventrolaterally on segment 8. *Condyloderes clarae* sp. nov. is characterized by a combination of cuspidate spines on segments 5, 8, and 9 only, cuspidate spines ventrolaterally on segment 8 and in a lateral accessory position on segment 9, ventromedial appendages on segments 5, 6, and 7 in females. Both species exhibit the recently described type-6 sensory spots. Furthermore, the female morphology and data on the distribution of *Condyloderes multispinosus* (McIntyre, 1962) within the Mediterranean Sea are reported, along with the record of the co-occurrence of different species of *Condyloderes* at the same site. We report a certain degree of intraspecific variation of taxonomically diagnostic characters like the presence or absence of cuspidate spines and sensory spots on some segments in *C. agnetis* sp. nov. and *C. multispinosus*. The presence of regularly arranged cuticular hairs on most trunk segments and of an acicular spine in lateral accessory position on segment 1, along with the absence of an area of micropapillae on segment 9 in females of *C. agnetis* sp. nov. and *C. clarae* sp. nov., unique within the genus, suggest the existence of distinct evolutionary lines within *Condyloderes*. The discovery of the two new species highlights the potential species richness of a genus considered species-poor until recently. Our findings underscore the importance of promoting further studies even in rather well investigated areas, such as the Mediterranean basin. Beyond the taxonomic and biogeographical interest, the data reported herein provides additional insights for ongoing taxonomic and phylogenetic investigations on the Centroderidae and allies, and on the whole Cyclorhagida.