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## ***Ramazzottius thulini* (Pilato, 1970) bona species and description of *Ramazzottius libycus* sp. nov. (Eutardigrada, Ramazzottiidae)**

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### Abstract

Comparing the type series of *Ramazzottius thulini* with specimens of *Ramazzottius oberhaeuseri*, from the *locus typicus*, we confirmed there are morphological and metric differences between these two species. This evidence convinced us that *R. thulini* should be considered a *bona species*. A new species, *Ramazzottius libycus* sp. nov., is also described. *Ramazzottius libycus* sp. nov. differs from *R. oberhaeuseri* in having more slender internal claws I–III and anterior claws IV, and other metric differences relative to all claws. The new species differs from *R. thulini* in details of the cuticular ornamentation, stylet supports inserted on the buccal tube in a slightly more caudal position, internal claws slightly different in shape, and some metric differences relative to all claws. It appears *R. thulini* and *R. libycus* sp. nov. are sibling species of *R. oberhaeuseri* and therefore the authors expect that there are other cryptic species included under the *R. oberhaeuseri* name still awaiting to be recognized and described.

**Key words:** Eutardigrada, *Ramazzottius oberhaeuseri*, *R. thulini*, *R. libycus* sp. nov.

### Introduction

Since the original description, *Ramazzottius thulini* (Pilato, 1970) has appeared as a problematic species, some authors considered it as a synonym of *Ramazzottius oberhaeuseri* (Doyère, 1840) (e.g. Maucci, 1986), others considered *R. thulini* as a valid species or left the problem of an eventual synonymy unsolved (e.g. Biserov 1997/98).

At present 26 species of the genus *Ramazzottius* are known (Degma *et al.*, 2012; some of which have a smooth cuticle, while in others the dorsal and lateral cuticle is completely or partially sculptured. In some species a degree of individual variability may be noted in the extent and visibility of the cuticular ornamentation. Specimens have been ascribed to *Ramazzottius semisculptus* Pilato & Rebecchi, 1992, which exhibit either a faint cuticular ornamentation or a smooth cuticle. Specimens attributed to *R. oberhaeuseri* have generally sculptured cuticle, but also specimens with smooth cuticle have been attributed to that species (Durante Pasa & Maucci, 1979). All the known *Ramazzottius* species lay eggs free and with variously shaped processes but only two (*R. oberhaeuseri* and *R. thulini*) produce eggs with mostly hemispherical and few conical or trunco-conical processes. This character reduced to two the number of comparative species required for us to establish whether *R. thulini* is or is not a *bona species*. However, a specific diagnosis of *R. oberhaeuseri sensu stricto* is a difficult problem to solve because there is no type-series and, as mentioned above, authors attributed to this species both specimens with sculptured and smooth cuticle. Richters (1908) instituted the form *R. o. granulosus* for the specimens with ornamented cuticle, but most authors have not considered it opportune to distinguish between sculptured and smooth cuticle forms.

In the species description, Doyère (1840 as *Macrobiotus oberhaeuseri*) does not specifically mention any cuticular ornamentation. This implies either the cuticle was smooth or that the quality of Doyère's microscope was not good enough to observe sculptured ornamentation. The latter hypothesis is less than plausible since Spallanzani (1776), several years earlier, noted cuticular ornamentation of the first tardigrade examined (which according to some authors (Perty, 1835; Della Valle 1915) could have been *R. oberhaeuseri*).