BSP Conference 21-25 June: Parasites Online 2021

Re-evaluation of *Microcotyle* spp. (Monogenea, Microcotylidae) from sparids in southern Mediterranean using integrative taxonomy, and description of two new species

Chahinez Bouguerche [a, b] ; Delphine Gey [c]; Fadila Tazerouti [a]; Jean-Lou Justine [b]

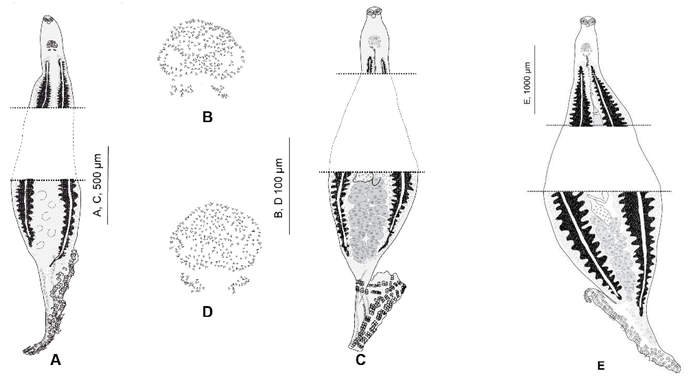
[a] : Université des Sciences et de la Technologie Houari Boumediene (U.S.T.H.B), Laboratoire de Biodiversité et Environnement, Interactions et Génomes, Alger, Algeria

[b] : Service de Systématique moléculaire, UMS 2700 CNRS, Muséum National d'Histoire Naturelle, Sorbonne Université, CP 26, 43 rue Cuvier, 75231 Paris Cedex 05, France.

[c] : Institut Systématique Évolution Biodiversité (ISYEB), Muséum National d'Histoire Naturelle, Paris, France h

Abstract

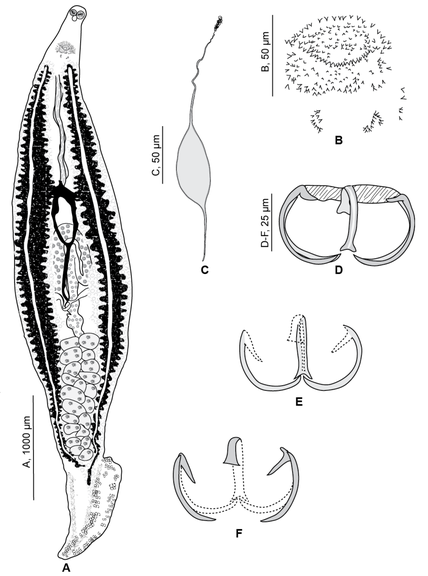
- The monogenean *Microcotyle erythrini* is atypical because it has been recorded from several fish host species, in contrast to many species which are considered strictly host-specific.
- A morphology-based comparison of specimens of a monogenean resembling *Microcotyle erythrini* from *Boops boops* off Algeria, with *M. erythrini* did not yield any morphological difference. COI Sequences of those specimens differed by 16.3% from that of *M. erythrini* , indicating that the species was different.
- The cryptic species from *Boops boops* was described as *Microcotyle isyebi* Bouguerche, Gey, Justine & Tazerouti, 2019 .
- We collected a second *Microcotyle* species from *Pagrus caeruleostictus.* This species was distinguished from *M. erythrini* based on morphological and molecular (COI) differences and was described as a new species, *Microcotyle visa* Bouguerche, Gey, Justine & Tazerouti, 2019.
- A species of *Paramicrocotyle* sp. included in the molecular analysis was nested within a robust *Microcotyle* + *Paramicrocotyle* clade. We considered that *Paramicrocotyle* Caballero & Bravo-Hollis, 1972 is a junior synonym of *Microcotyle* van Beneden & Hesse, 1863 and transferred two species of *Paramicrocotyle* to *Microcotyle.*



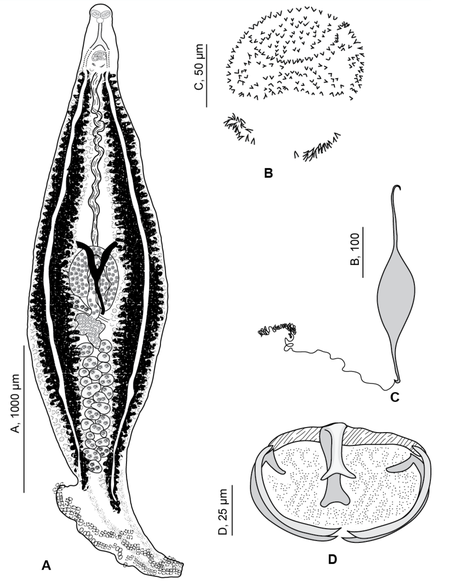
Paratypes with molecular information.
A-D *Microcotyle visa*. **E** *Microcotyle isyebi*. The anterior part (which include the genital atrium) and the posterior part (containing testes and the haptor) were mounted, on a single slide, for deposition in a Museum.

Results & Discussion

- Sequences of COI of *Microcotyle* found on *Boops boops* differed by 16.3% from that of *M. erythrini* from the type-host *Pagellus erythrinus*.
- The species from *Boops boops* was described here as a new species *Microcotyle isyebi,* named after ISYEB, an acronym for "Institut de Systématique, Evolution, Biodiversité" as an acknowledgement of the help offered to the first author.
- Analysis of the cox1 gene of the second *Microcotyle* species collected on *Pagrus caeruleostictus* and other *Microcotyle* species revealed a divergence reanging between 10–15 %, in addition to morphological differences (size of clamps, number of testes).
- A molecular re-evaluation of other *M. erythrini - like* specimens in from various fish hosts could reveal the existence of additional parasite biodiversity.

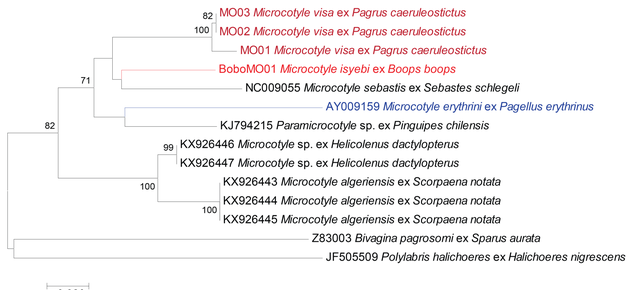


Microcotyle isyebi* from *Boops boops.
A Holotype, whole body, ventral view. **B** Holotype, spines of genital atrium. **C** Egg. **D-F** Clamp (**D** both parts superposed, **E** lower part, **F** upper part).



Microcotyle visa* from *Pagrus caeruleostictus.
A Holotype, whole body, ventral view. **B** Holotype, spines of genital atrium. **C** Egg. **D** Clamp.

- Our molecular study included a member of *Paramicrocotyle*, which was placed amongst several species of *Microcotyle* without having a distinct branch.
- The *Microcotyle* + *Paramicrocotyle* clade was well supported.
- We considered that *Paramicrocotyle* was a junior synonym of *Microcotyle* and transferred these species as *Microcotyle danielcarrioni* (Martinez & Barrantes, 1977) Bouguerche, Gey, Justine & Tazerouti, 2019 and *Microcotyle moyanoi* (Villalba & Fernandes, 1986) Bouguerche, Gey, Justine & Tazerouti, 2019.



Neighbour-Joining tree (p-distance method) based on an analysis of cox1 sequence data for Microcotyle spp. Bootstraps percentages (1,000 replicates) are indicated next to the branches (only values[70% are shown).

Check it Out!

This results were published.
Bouguerche, C., Gey, D., Justine, J.-L., & Tazerouti, F. (2019a). *Microcotyle visa* n. sp. (Monogenea: Microcotylidae), a gill parasite of *Pagrus caeruleostictus* (Valenciennes) (Teleostei: Sparidae) off the Algerian coast, Western Mediterranean. Systematic Parasitology, 96, 131–147.

Bouguerche, C., Gey, D., Justine, J.-L., & Tazerouti, F. (2019b). Towards the resolution of the *Microcotyle erythrini* species complex: description of Microcotyle isyebi n. sp. (Monogenea, Microcotylidae) from *Boops boops* (Teleostei, Sparidae) off the Algerian coast. Parasitology Research, 118, 1417–1428.

Ocean Space

Acknowledgment