First study on Gyrodactylus (Monogenea: Gyrodactylidae) in Morocco, with description of a new species on cyprinids (Actinopterygii: Cyprinidae)

Miriam Isoyi SHIGOLEY^{1,2,4*}, Imane RAHMOUNI², Halima LOUIZI², Antoine PARISELLE^{2,3}, Maarten P.M. VANHOVE¹

1 Research Group Zoology: Biodiversity & Toxicology, Centre for Environmental Sciences, Hasselt University, Belgium

2 Laboratory of Biodiversity, Ecology and Genome, Faculty of Science, Mohammed V University, Rabat, Morocco

3 ISEM, Université de Montpellier, CNRS, IRD, Montpellier, France

4 Department of Veterinary Management of Animal resources, Faculty of Veterinary Medicine, Liège University, Belgium

Background information

Gyrodactylus is one of the 23 genera of Gyrodactylidae. With only 41 species described, the total number of *Gyrodactylus* species described from African freshwater fish still remains low. In view of the importance of the cyprinid-monogenean system in studying the aquatic biodiversity and biogeography of North Africa, the present study is a substantial contribution to the parasite species inventory of these fishes

Materials and Methods

- Fish were sampled from 28 localities covering 9 watersheds in Morocco
- 738 cyprinid hosts were identified to species level
- Their gills were examined for infection with *Gyrodactylus*
- Measurement of haptoral parts followed those by Shinn et al. (2004)

Results

- 26 specimens of *Gyrodactylus* were isolated from gills of infected hosts (Fig. 1, 2 & 3)
- 12 specimens isolated from *L. pallaryi* (n=11) and *L. ksibi* (n=1) were measured and considered as conspecific (Fig. 4)
- A comparison with previously described congeners revealed a species new to science (Fig. 5)

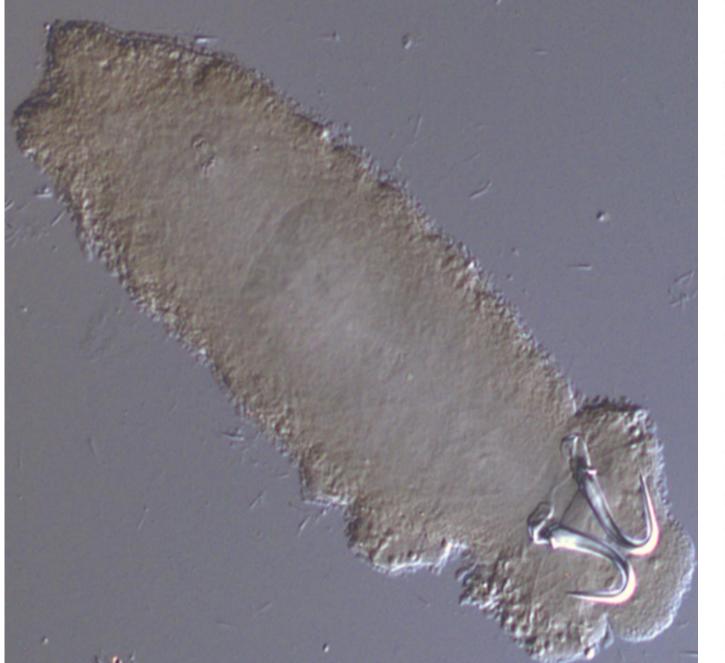


Fig. 1. Whole mount of *Gyrodactylus nyingiae*

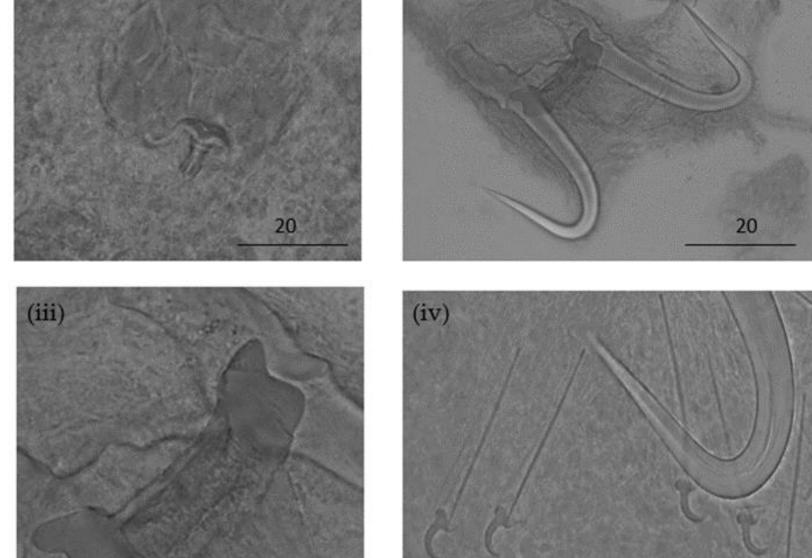


Fig. 2. Photomicrographs of (i) MCO (ii, iii & iv) haptoral parts of *Gyrodactylus nyingiae*

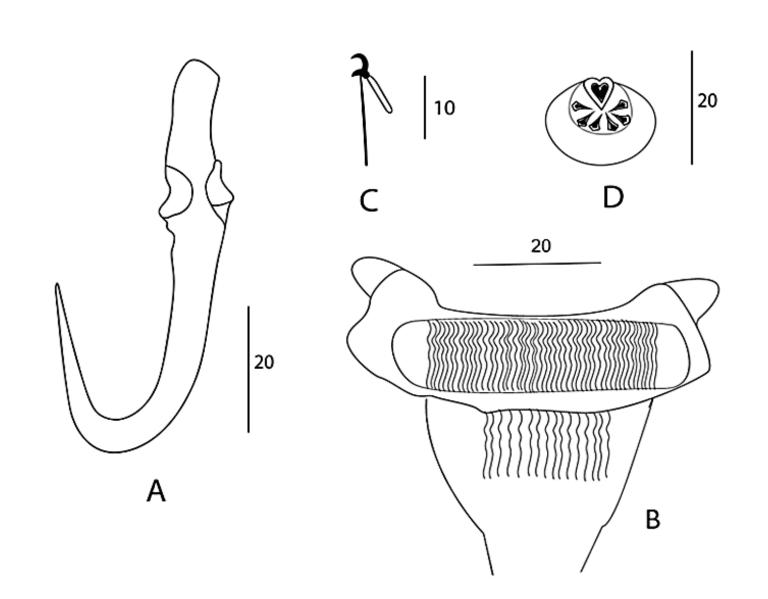


Fig. 3. Drawings of haptoral parts and MCO (scale bar in μm)

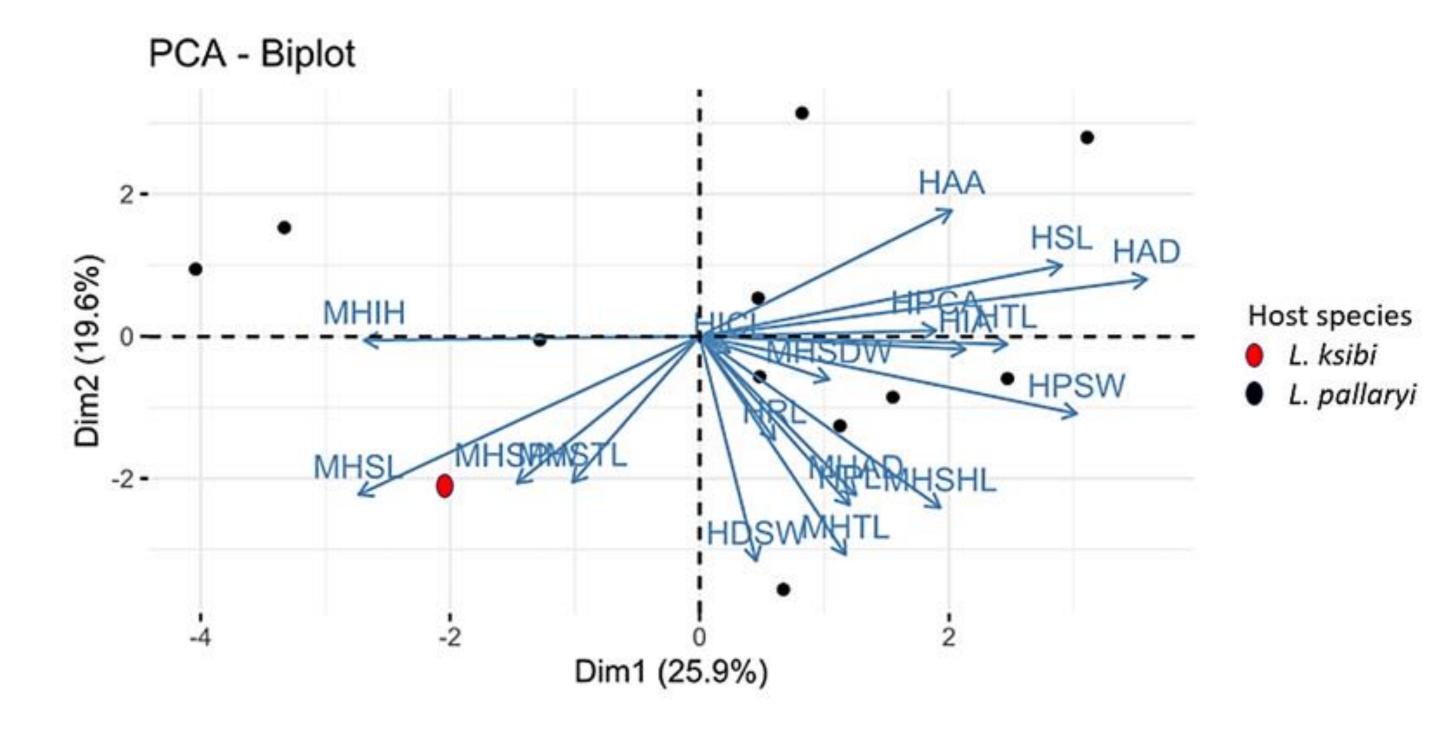


Fig. 4. Biplot of PCA (first two axes) based on measurements of the haptoral hard parts of all the 12 individuals of *Gyrodactylus nyingiae*

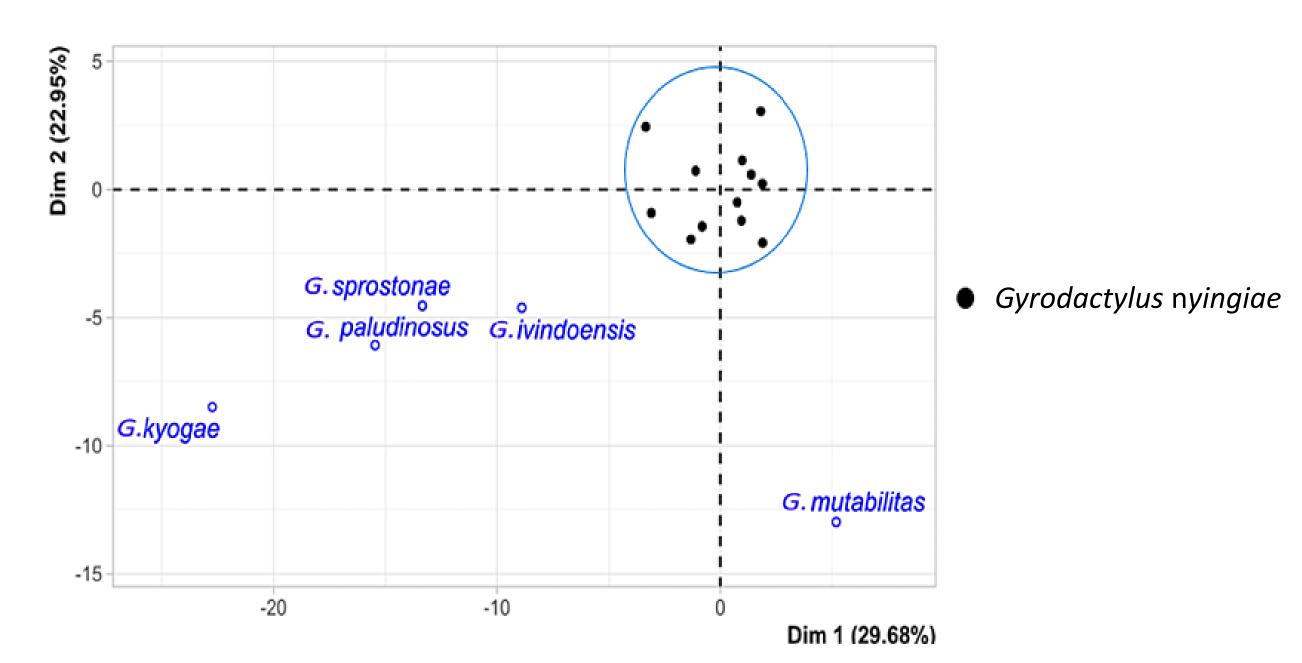


Fig. 5. PCA (first two axes) of the newly described *Gyrodactylus* (in blue circle) and previously described species (supplementary individuals)

Conclusion

- Based on morphoanatomical observation of opisthaptoral parts of 12 individuals of *Gyrodactylus* we described a new species infecting two cyprinid hosts for the first time in Morocco and in the Maghreb region
- The species reported in this study is also the first gyrodactylid to be described from *Luciobarbus* in Africa
- This study raises the total number of described species of *Gyrodactylus* in Africa to 42

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