

Dental Morphology and Taxonomic Analysis of Serrasalminidae (Characiformes)

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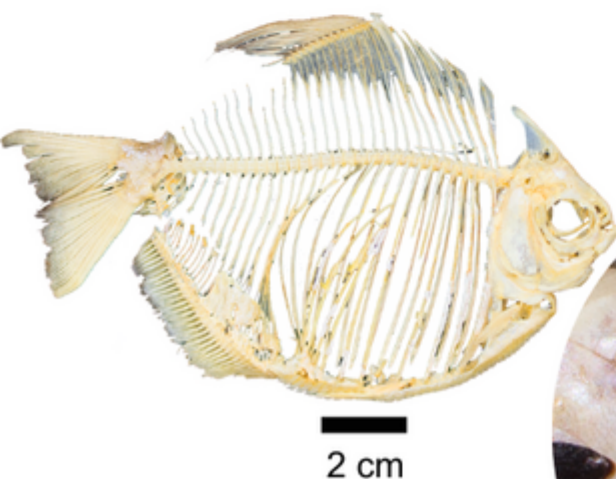
INTRODUCTION & AIM

- ◆ Exclusively Neotropical freshwater Characiformes from South America.
- ◆ 18 genera with 105 described species, represented by piranhas and pacus.
- ◆ Several species are represented in the fossil record, including one extinct species.
- ◆ Reviewing the dental morphology of this family is highly relevant due to its recurrent use in taxonomic classification and for identifying fossil teeth among extinct members of the family.

The goal of this study was to review the dental morphology and correlate it with the taxonomy of the main current representatives of this family.

METHOD

- ◆ *Metynnis fasciatus* (UERJ PNT-577)
- ◆ *Metynnis guaporensis* (UERJ PNT-578-579)
- ◆ *Myloplus arnoldi* (UERJ PNT-576)
- ◆ *Pygocentrus nattereri* (UERJ PNT-575)
- ◆ The specimens were dissected and cleaned using dermestid beetles, and their dentary and premaxillary bones were then extracted for detailed analysis of the teeth.



2 cm



RESULTS & DISCUSSION



2 mm

Myloplus arnoldi and *Metynnis* spp. teeth are molariform, with slightly elevated and convex crowns, asymmetrical cusps with the external ones larger and darker (brown) than internal ones (white), broad roots, laterally extended and deeply set into the bones, and a wide smooth surface.

5 mm



Pygocentrus nattereri's teeth are caniniform, with long, flattened, and high crowns, sharp serrated edges, broad conical roots tightly set into the bones, and a triangular, smooth, whitish surface.

The dentition follows the morphological pattern described in the literature, highlighting the taxonomic relevance of these traits and their use for identifying serrasalminid taxa, in both extant and fossil representatives of the family.

CONCLUSION

This study strengthens the taxonomic framework of Serrasalminidae by demonstrating that dental morphology provides consistent and reliable traits for identifying both extant and fossil representatives, thereby improving the systematic and evolutionary understanding of the family.

FUTURE WORK / REFERENCES

M. A. Kolmann *et al.* 2020 - Systematic Biology
<https://doi.org/10.1093/sysbio/syaa065>