

## The curation and organization of samples for molecular studies in the fish collection of Museu de História Natural da Bahia, Bahia, Brazil

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### INTRODUCTION & AIM

The ichthyological collection at the Museu de História Natural da Bahia (MHNBA) in Salvador, Bahia, Brazil, began in the 1970s, initially focusing on marine species. Between 2003 and 2024, several field expeditions were conducted to explore the taxonomic and geographical diversity of freshwater species across eight Brazilian ecoregions. Since 2005, and particularly in the last seven years, expeditions funded by Brazilian development agencies have been carried out to collect fish tissues, establishing the fish tissue collection in the MHNBA.

The goal of the molecular collection is to catalogue, preserve, and study the ichthyological collection of freshwater fish tissues at MHNBA, with the aim of promoting knowledge and the conservation of Brazil's aquatic biodiversity. Through the systematization of data, the collection seeks to facilitate access to information for researchers, students, and the general public, while also fostering future scientific research and conservation efforts for local aquatic ecosystems.

### METHOD

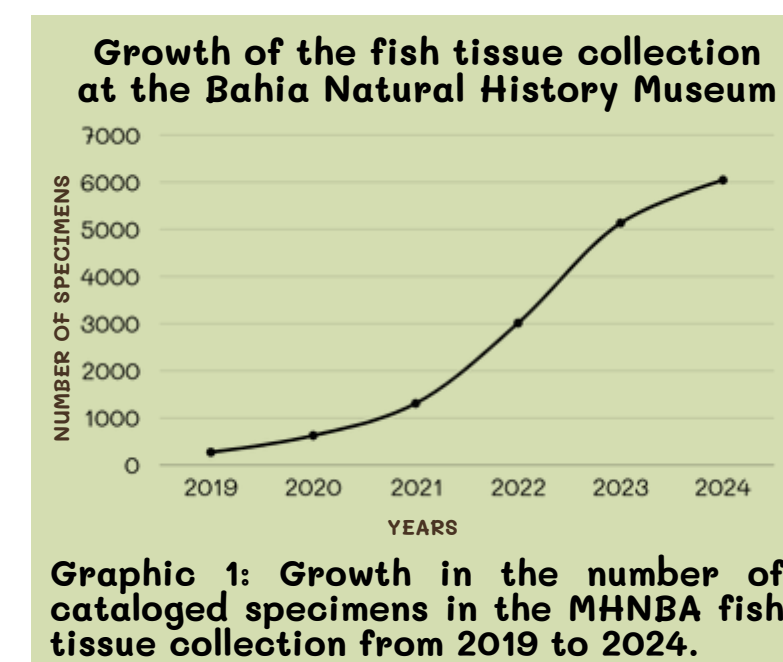
The curation and management of the collection are carried out in four stages: first, the sorting and identification of the material at the lowest possible taxonomic level takes place; second, we proceed to the sample storage, during which a tissue sample is taken and the specimens are labeled; third, an aliquot or, when possible, the entire specimen is stored in Eppendorf tubes organized in cryoboxes, which are kept in freezers at -18°C; and finally, the material is digitized and cataloged in the collection's database. The entire process can be observed in figure 1.



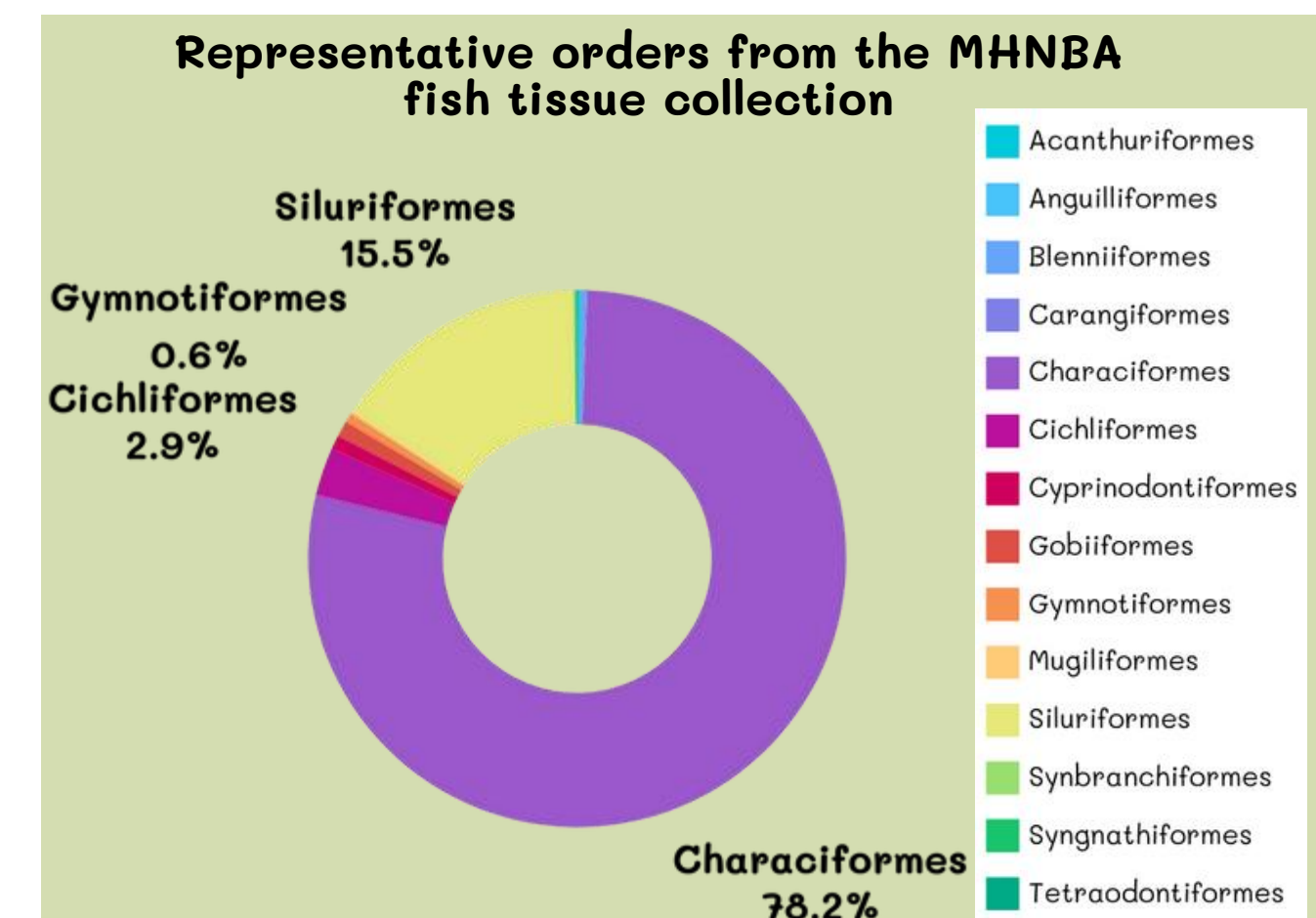
Figure 1: Material and process for collecting and storing tissues: 1 - Material sorting; 2 - Taxonomic identification; 3 - Aliquot of the specimens; 4 - Labelling the material; 5 - Tissue samples stored in eppendorf tubes; 6 - Eppendorf with tissues organized in cryoboxes; 7 - Cryoboxes kept in freezers (at -18°C); 8 - Computerization and material tipping.

### RESULTS & DISCUSSION

Currently, the ichthyological collection of the MHNBA comprises approximately 10,500 cataloged lots from around 1,600 locations, stored in 70% alcohol and organized in sliding cabinets. In turn, the fish tissue collection, stored in freezers at -18°C, contains 6,044 vouchers (Graphic 1) representing 105 genera, 263 species and 14 orders deposited in the collection (Graphic 2). Among the cataloged specimens, 29 are paratypes of four freshwater fish species. The collection also includes samples of species rarely found in tissue collections, such as *Astyanax brucutu*, *Lepidocharax diamantina*, *Hasemania piatan*, and *Hirtella carinata* (Fig. 2). Furthermore, photographs of the majority of the species sampled are available (See Fig. 3 with examples).



Graphic 1: Growth in the number of cataloged specimens in the MHNBA fish tissue collection from 2019 to 2024.



Graphic 2: Orders represented in the MHNBA fish tissue collection, with emphasis on the four most representative ones: Characiformes, Siluriformes, Cichliformes, and Gymnotiformes, respectively.

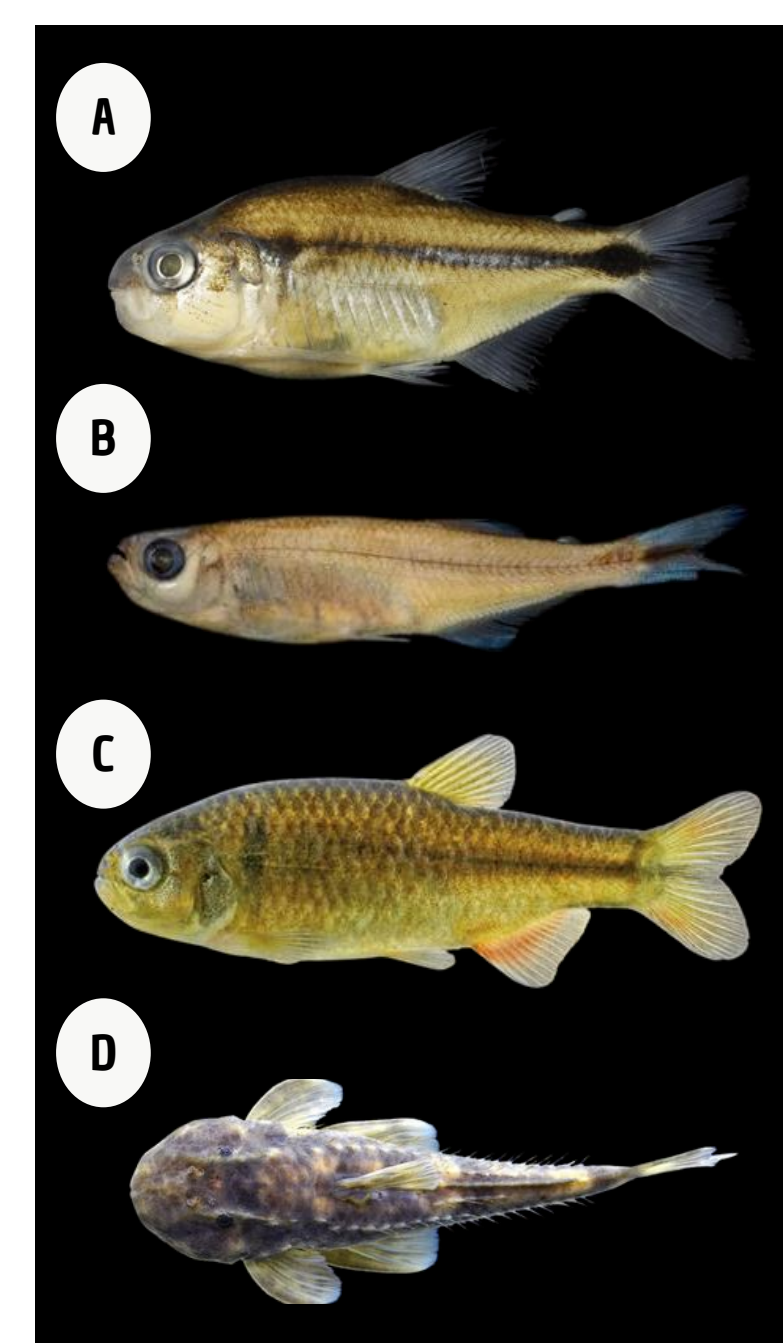


Figure 2: Examples of species considered uncommon in fish tissue collections but present in the MHNBA fish collection: A. *Astyanax brucutu*; B. *Lepidocharax diamantina*; C. *Hasemania piatan*; D. *Hirtella carinata*.

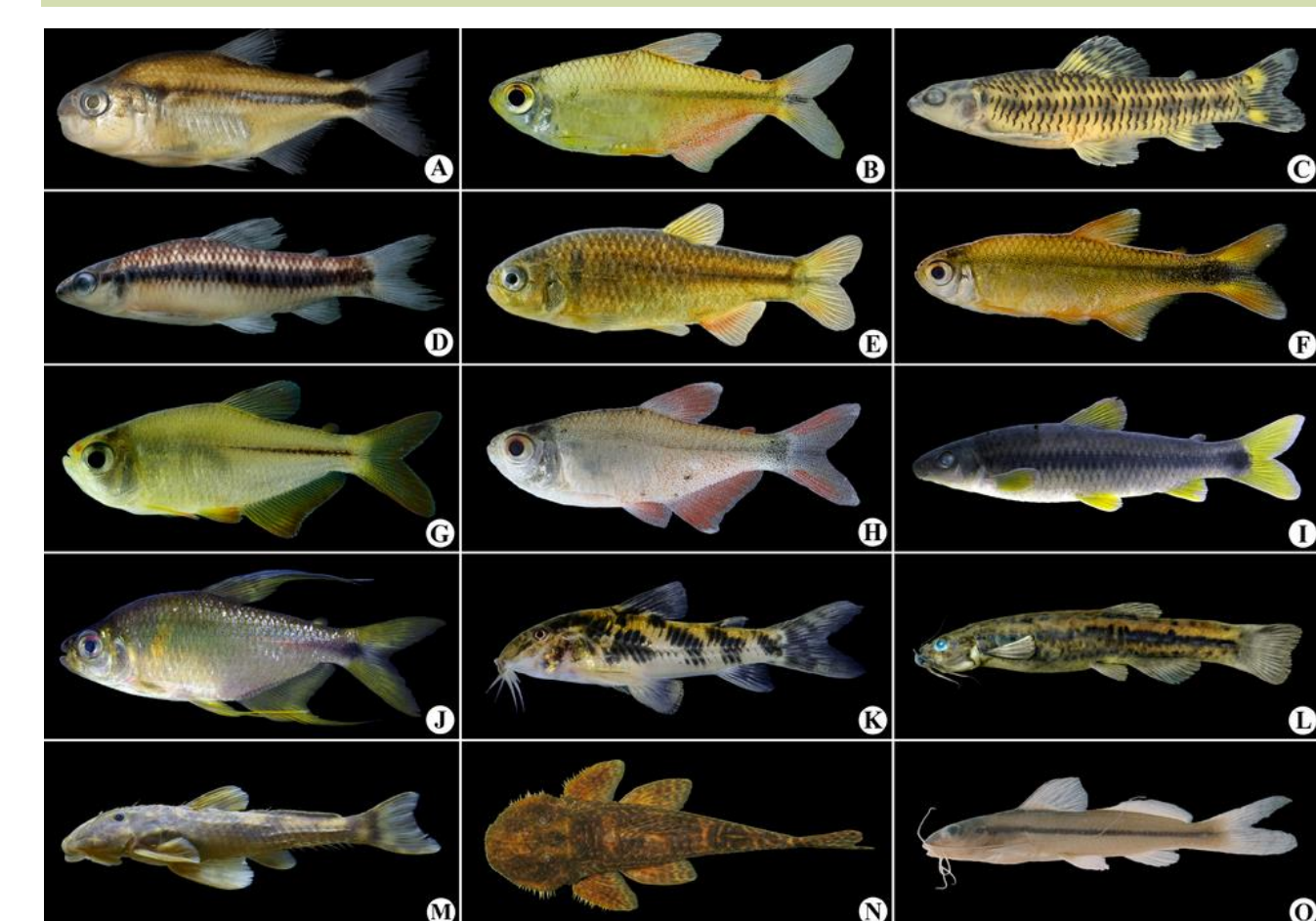


Figure 3: Representative fish species of the fish collection of the Museu de Zoologia da Universidade Federal da Bahia. A. *Astyanax brucutu*; B. *Astyanax vermillion*; C. *Characidium kamakan*; D. *C. samurai*; E. *Hasemania piatan*; F. *Hyphessobrycon brumado*; G. *H. itaparicensis*; H. *H. parvulus*; I. *Leporinus melanopleurodes*; J. *Nematocharax venustus*; K. *Aspidoras kiriri*; L. *Copionodon elysium*; M. *Hirtella carinata*; N. *Pareiorhaphis lophia*; O. *Pimelodella itapicouruensis*.

### CONCLUSION

The MHNBA fish tissue collection is a crucial source of information for the conservation and understanding of the Northeastern Brazilian Region's aquatic biodiversity. Its systematization and preservation are essential for scientific research in genetics, ecology, and taxonomy, as well as supporting the protection of freshwater ecosystems. The dissemination of the data promotes environmental education and awareness regarding the conservation of water resources and aquatic species, playing an important role in sustainability and biodiversity preservation.

### FUTURE WORK / REFERENCES

ZANATA, A. BURGER, R. VITA, G. OLIVEIRA-SILVA, L. SILVA-JUNIOR, D. & CAMELIER, P. The fish collection of the Museu de Zoologia da Universidade Federal da Bahia, Salvador, Bahia, Brazil. *Boletim Sociedade Brasileira de Ictiologia*, p. 131-138, 2019. [https://www.sbi.bio.br/images/sbi/boletim-docs/2019/outubro\\_129.pdf](https://www.sbi.bio.br/images/sbi/boletim-docs/2019/outubro_129.pdf)

