



Indicate the format in which you wish to present your work:  Poster  Oral Presentation

#### TITLE

**DIVERSITY AND DISTRIBUTION OF LIMNIC MOLLUSKS AND EVALUATION OF INTERVENTIONS FOR SCHISTOSOMIASIS IN AN ENDEMIC MUNICIPALITY IN BRAZIL: REFLECTING ON 50 YEARS OF BIOMPHALARIA CONTROL**

#### AUTHORS

Oliveira, N.M.T.\*<sup>1</sup>; Coelho, P.R.S.<sup>1</sup>; Gomes D.S.<sup>1</sup>; Oliveira, B.L.<sup>1</sup>; Severino, A.J.M.<sup>1</sup>; Caldeira, L.R.<sup>2</sup>; Thiengo S.C.<sup>3</sup>; Geiger, S.M.<sup>1</sup>

#### AFFILIATIONS

<sup>1</sup> Intestinal Helminthiasis Laboratory, Department of Parasitology, Federal University of Minas Gerais, Belo Horizonte, Brazil  
<sup>2</sup> Research Group on Helminthology and Medical Malacology, René Rachou Institute, Oswaldo Cruz Foundation, Belo Horizonte, Brazil  
<sup>3</sup> Malacology Laboratory, Oswaldo Cruz Institute, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil

#### ABSTRACT

Baldim, in the Central Region of Minas Gerais, is considered an endemic area with a long history of *Schistosoma mansoni* infections. Despite different control strategies, such as chemotherapy campaigns with Niclosamide and biological control with *Pomacea haustorium* between 1969 and 1973, the complete elimination of the disease has not been achieved. The present study analyzed the diversity and spatial distribution of limnic mollusks 50 years after the introduction of *Pomacea* sp. in the municipality of Baldim, in addition to the evaluation of the effectiveness of biological control for the species of the genus *Biomphalaria*. The malacological survey was carried out from June/2022 to August/2023 at 28 freshwater, sampling points, distributed in urban and rural areas of the municipality. In the laboratory, captured snails were individualized in tissue-culture plates with dechlorinated water and analyzed under a stereomicroscope after artificial photostimulation for 2 hours to evaluate the release of larval forms of cercariae. The cercariae obtained were mounted on semipermanent slides, stained in Lugol's solution, and fixed in 10% formalin for morphological analysis and identification. The mollusks were identified by morphology and 10% of mollusks of the genera *Biomphalaria* and *Pomacea* were identified by Molecular Biology. The mapping of the malacological distribution in the municipality was performed using the GeoDa and QGIS 3.28.2 programs. A total of 2.085 mollusks were collected at 10 locations, and with the identification of 12 different species: *Biomphalaria* spp. (50.69%; n=1.057); *Stenophysa marmorata* (25.41%; n=530); *Melanoides tuberculata* (13.52%; n=161); *Pseudosuccinea columella* (7.72%; n=98); *Gundlachia ticaga* (4.50%; n=94); *Corbicula largillierti* (3.50%; n=73); *P. maculata* (1.72%; n=36); *Drepanotrema anatinum* (1.05%; n=22); *Idiopyrgus souleyetianus* (0.43%; n=9); *Physella acuta* (0.38%; n=8); *Drepanotrema cimex* (0.14%; n=3); *Omalonyx matheroni* (0.09%; n=2). At the locations, the presence of *Biomphalaria* species was confirmed, including *B. glabrata*, *B. tenagophila*, *B. straminea*, *B. occidentalis*, and *B. kuhniana*. The presence of cercariae of the types *Echinostoma*, *Monostoma*, *Xiphidiocercaria*, *Estringiocercaria*, *Parapleurolophocerca*, and *Gymnocephala* was detected. Although no *S. mansoni* infection was identified, the distribution of *Biomphalaria* species was restricted to urban areas and was in agreement with the distribution of confirmed positive human cases, identified by the SPC (Schistosomiasis Control Program) in the period 2008-2017. In addition, it was observed that *P. maculata* populations remain restricted to the areas of its introduction, without significant impact on the intermediate hosts of schistosomiasis. In this context, it is essential to investigate alternative strategies for schistosomiasis control, while also advancing the understanding of the interactions between mollusk species and their associated trematodes.

#### KEYWORDS

Biological Control; Spatial Distribution; Malacofauna; Trematode

#### FINANCIAL SUPPORT

CAPES; Municipality of Baldim