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#### TITLE

**APPLICATION OF PCR FOR THE IDENTIFICATION OF BIOMPHALARIA SPECIES AND SCHISTOSOMA MANSONI INFECTION IN MOLLUSKS FROM A REGION WITH HIGH SCHISTOSOMIASIS PREVALENCE IN SERGIPE**

#### AUTHORS

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#### ABSTRACT

Schistosomiasis is a parasitic disease caused by the trematode *Schistosoma mansoni*, with mollusks of the genus *Biomphalaria* serving as its intermediate hosts and humans as the definitive hosts. In Brazil, approximately 1.5 million individuals are currently affected, predominantly in the North and Northeast regions, with Sergipe exhibiting the highest prevalence nationwide. Despite this, the Schistosomiasis Control Program (PCE) remains inactive in several municipalities within Sergipe, including São Cristóvão, which experiences a notably high prevalence of the disease. Objectives: The primary goals of this study were to identify schistosomiasis-transmitting mollusks in São Cristóvão, Sergipe, utilizing PCR-RFLP (PCR-Restriction Fragment Length Polymorphisms) for species identification, and to detect *S. mansoni* infection in these mollusks using conventional PCR techniques. Methodology: Mollusks were collected from four regional locations and transported to the Laboratory of Tropical Entomology and Parasitology at the Federal University of Sergipe (LEPaT/UFS). DNA was extracted from the mollusks using the Wizard Genomic DNA Purification Kit (Promega), adhering to the manufacturer's protocols. Following DNA extraction, PCR-RFLP was performed to determine the molecular profiles and identify the mollusk species, while conventional PCR was used to detect *S. mansoni* infection. Results: A total of 454 mollusks were collected, and DNA was extracted from 63 specimens. The analysis revealed a significant prevalence of *S. mansoni* infection at 28.6% (18/63). All mollusks were identified as *Biomphalaria glabrata*, the predominant species in Sergipe. Conclusions: Mollusks infected with *S. mansoni* were identified at two collection sites within the municipality, indicating that the populations in these areas are at risk of infection. As schistosomiasis is classified as a Neglected Tropical Disease (NTD) primarily impacting impoverished communities, the enhancing of molecular analysis techniques, such as PCR, is essential for the effective operation of the PCE. This improvement will facilitate more efficient and cost-effective environmental surveillance, thereby contributing to the implementation of effective control measures.

#### KEYWORDS

*Schistosoma mansoni*; Intermediate Host; Molecular Biology

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