

Usefulness of Environmental DNA for Surveillance and Control of Schistosomiasis: Detection and Tracking *Schistosoma mansoni* and Its Intermediate Host *Biomphalaria glabrata* in Low Endemic Areas of Minas Gerais, Brazil

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Schistosomiasis is one of the most important parasite infections around the world with 3 main species of medical importance: *Schistosoma haematobium*, *Schistosoma japonicum* and *Schistosoma mansoni*. In Brazil, schistosomiasis mansoni is endemic in many areas, and uses the snail *Biomphalaria glabrata* as the intermediate host. Ecoepidemiologic approach using the environmental DNA (eDNA) has been increasing over the years, because its high sensitivity and specificity and easiness of sampling. In this way, this study aimed to introduce eDNA detection for *B. glabrata* and *S. mansoni* in municipalities of Minas Gerais, Brazil. Five cities were selected (Arceburgo, Comercinho, Guaranésia, Perdígão and Simão Pereira), and 18 water sources were used for eDNA detection. Tests *in vitro* using laboratory strain of *B. glabrata* was performed. eDNA of single snail could be detected in water even exposed in natural conditions after 96 hours. For the field samples collected, eDNA of *S. mansoni* were detected in 10 sites (Arceburgo - Farm; Comercinho - Point 4, 6, 7, 8 and 9; Guaranésia - Ribeirão; Simão Pereira - Paraibuna River - Point 1 and 2 and Perdígão - Lake); and *B. glabrata* could be detected in 3 sites (Arceburgo - Farm; Comercinho - Point 5 and Perdígão - Lake). Parasite and snails eDNA could be detected in field samples showing the usefulness of the designed system for determination of active transmission sites. The application of the technique in schistosomiasis surveillance can be useful in endemic areas, for monitoring and prevention of schistosomiasis transmission.