

P-6. 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

Matheus Pereira de ARAÚJO^{1,2}, Marcos José MARQUES¹, Raquel Lopes Martins SOUZA¹, Luiz Felipe Leomil COELHO¹, Vinícius Ferreira PATERNO¹, Masashi KIRINOKI², Satoru KAWAI², Áureo Almeida de OLIVEIRA³, Sueleny Silva Ferreira TEIXEIRA³, Florence Mara ROSA⁴, Yuichi CHIGUSA², Megumi SATO⁵ and Marcello Otake SATO²

¹Institute of Biomedical Sciences, Universidade Federal de Alfenas

²Department of Tropical Medicine and Parasitology, Dokkyo Medical University

³Laboratory of Schistosomiasis, Research Center René Rachou

⁴Department of Parasitology, Microbiology and Immunology, Universidade Federal de Juiz de Fora

⁵Graduate School of Health Sciences, Niigata University

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, Perdigão 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 Perdigão - Lake); and *B. glabrata* could be detected in 3 sites (Arceburgo - Farm; Comercinho - Point 5 and Perdigão - 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.