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TITLE

STABILITY OF THE HELMINTH COMMUNITY IN NECTOMYS SQUAMIPES 22 YEARS APART IN A LOW ENDEMIC AREA FOR SCHISTOSOMIASIS IN BRAZIL

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ABSTRACT

The municipality of Sumidouro in the state of Rio de Janeiro, Brazil, is recognized as an area of low endemicity for mansonic schistosomiasis. In addition to humans, the wild rodent Nectomys squamipes acts as a reservoir for Schistosoma mansoni. A study conducted between 1997 and 1999 in Sumidouro investigated the helminth community in populations of N. squamipes. In the present study, we compared the helminth fauna and helminth community structure of N. squamipes with a recent survey after a 22-year time interval, considering that the prevalence of S. mansoni infection in humans remained stable despite regular treatment and that the area maintained the same environmental characteristics. Seventy-three N. squamipes specimens collected between 1997 and 1999 and 21 specimens collected in 2021 were analysed in this study. Seven helminth species were found in each collection period. The nematode Syphacia evaginata was recorded for the first time in N. squamipes in 2021. Syphacia venteli was the most abundant species in both periods and the most prevalent in 2021. During the period 1997–1999, the most prevalent species was Hassalstrongylus epsilon. A higher prevalence and abundance in male hosts were observed only for S. mansoni in 1997–1999 period. Significant differences in helminth species abundance were observed only in Physaloptera bispiculata. The species H. epsilon, S. venteli and S. mansoni were dominant in the helminth community in both periods. Litomosoides chagasfilhoi, Echinostoma paraensei and P. bispiculata became dominant, codominant and subordinate, respectively, over time. Therefore, the helminth community of N. squamipes remained stable, with similar values of species richness, prevalence and abundance and low beta-diversity over time. The occurrence of S. mansoni in the water-rats remained stable over 22 years in Sumidouro. These results highlight the ecological importance of these rodents as reservoirs of the parasite, regardless of Sumidouro being an area of low endemicity and the treatment with praziquantel. In this context, infection in wild rodent reservoirs needs to be considered by schistosomiasis control programs.

KEYWORDS

Parasite Ecology; Schistosomiasis; Rodents; Wild Reservoirs

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