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RESEARCH NOTE

PROBABLE EXTENSION OF SCHISTOSOMIASIS MANSONI TO SOUTHERNMOST BRAZIL

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While carrying out his pioneer work on schistosomiasis in Brazil, A. Lutz (1916, *Brazil-Medico, 30*:385-387) had to resort to *Planorbis olivaceus* (=*Biomphalaria glabrata*) from the northeastern city of Aracaju, owing to his failure to infect planorbids from the region of Rio de Janeiro (*Biomphalaria tenagophila*). As he stated (Lutz, loc. cit.), "it can be affirmed that [schistosomiasis] is lacking in Rio, as well as in São Paulo state and southwards". For that reason his experimental studies on *Schistosoma mansoni* were based on material from northeasterner apprentices of the Naval School at Rio de Janeiro.

From Lutz's time schistosomiasis has spread slowly but steadily in all directions, *B. tenagophila* came to be an efficient vector, and hardly do a few years pass without a new focus of transmission appearing somewhere. As in other endemic regions of the world, spread of schistosomiasis is chiefly due to migration of infected people to clean areas with preexisting potential vectors, but there are instances of previous introduction of the vector and subsequent establishment of transmission.

In its southward expansion, by 1953 the disease reached its farthest point at Ana Dias (24°19'S, 47°04'W), São Paulo state, where it was diagnosed by Dr. A. Nogueira Jr. (cited by J.T. Piza & A.S. Ramos, 1960, *Arq. Hig. Saúde Públ., 25* :261-271), who also found infected *B. tenagophila* in the area. From there it jumped about 270 km southwards to be detected in 1980, infecting humans and *B. tenagophila*, at São Francisco do Sul (26°14'S, 48°39'W) Santa Catarina state (O.J. Bernardini & M.M. Machado, 1981, *Arq. Catarinenses Med., 10* :213). Another southward jump across about 430 km, and it may light on Tramandaí (29°59'S, 50°08'W), a coastal resort in Rio Grande do Sul, which corresponds to the northernmost record of *B. tenagophila* in that state.

To appraise the susceptibility of *B. tenagophila* from Tramandaí to infection with *S. mansoni*, we exposed 192 laboratory-reared snails, 4 to 8 mm in shell diameter, descended from specimens collected there, each to 5 miracidia from eggs concentrated from feces of Swiss albino mice infected with the SJ2 strain of *S. mansoni*, isolated from *B. tenagophila* collected at São José dos Campos, São Paulo state (for technical details, see W.L. Paraense & L.R. Corrêa, 1978, *J. Parasitol., 64* :822-826). On the 28th and 30th days after exposure, and then every 5th day, they were singly placed in vials with water and exposed to the light of electric lamps (28-30°C) to induce shedding of cercariae. One specimen shed cercariae on the 30th day after exposure to miracidia, and three others on the 35th day. They had well-developed sporocysts in the caudal third of the digestive gland and in the ovotestis. The remaining 188 specimens shed no cercariae up to the 70th day, when they were dissected and found free from infection. The infection rate in this group was thus 2.08%.

Another experiment involved 125 laboratory-reared *B. tenagophila*, 4 to 7 mm in shell diameter, descendants from specimens collected at the Sans-Souci district of Guaíba city (30°06'S, 51°19'W), Rio Grande do Sul, treated and followed up in the same way as described above. Two specimens died, respectively on the 29th and 60th days after exposure to miracidia, proving negative on dissection. The remaining 123 shed no cercariae up to 70 days after exposure, when they were dissected, showing no sign of infection.

The planorbids from Sans-Souci (Guaíba) and Tramandaí are considered different subspecies – *B. tenagophila guaibensis* and *B. tenagophila tenagophila*, respectively – by W.L. Paraense (1984, *Mem. Inst. Oswaldo Cruz, 79* :465-469). As shown by W.L. Paraense & L.R. Corrêa (1963, *Rev. Inst. Med. Trop. S. Paulo, 5* :23-29), the SJ strain of *S. mansoni* selectively infects *B. tenagophila* (as compared with *B. glabrata*), and they consider it a distinct biological race of the parasite (W.L. Paraense & L.R. Corrêa, 1981, *Mem. Inst. Oswaldo Cruz, 76* :287-291). Moreover, they showed that the SJ strain is infective to a great majority of *B. t. tenagophila* populations (W.L. Paraense & L.R. Corrêa, 1978, *J. Parasitol., 64* :822-826). The *S. mansoni* strain used in the above experiments (SJ2) was isolated from *B. t. tenagophila* from the same biotope that afforded the SJ strain. Its infectivity to *B. t. tenagophila* from Tramandaí, therefore, is not surprising. On the other hand, the insusceptibility of *B. t. guaibensis* deserves consideration. It may be another example of a less susceptible or even refractory population of *B. tenagophila* sensu lato, or an indication that *B. t. guaibensis* is a refractory subspecies. Additional experiments seeking to answer these questions are in progress.

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