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#### TITLE

**TISSUE REACTION OF BIOMPHALARIA GLABRATA (GASTROPODA: PLANORBIDAE), SPOROXYST DEVELOPMENT AND CERCARIAL SHEDDING IN POPULATIONS WITH DIFFERENT LEVELS OF COMPATIBILITY TO SCHISTOSOMA MANSONI (TREMATODA: DIGENEA)**

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#### ABSTRACT

*Biomphalaria glabrata* is the main intermediate host of *Schistosoma mansoni* in the Americas, and the availability of experimental models with different levels of compatibility is an important tool for parasite-host interaction studies. Most of the populations are highly compatible with different strains of the parasite and it is challenging to find a low compatibility population. The objective of this study was to evaluate the tissue reaction, sporocysts development and cercarial shedding in a population of *B. glabrata* that presents low compatibility to *S. mansoni* LE strain and compare it to other populations. Individual crossings were carried out between pigmented (low susceptibility - LS) and albino snails (susceptible - S), and their progenys (Crossings - CR) were compared to the ones of the groups LS and S. In the CR group, egg masses were collected only from albino S snails. Tissue reaction: F1 snails were fixed at 1, 5, 10, 24, 36 hours and 35 days after individual exposure to 50 miracidia and histological sections were carried out. Sporocysts development: Snails were individually exposed to 8, 20 and 50 miracidia and fixed after 8 to 17 days (N=300/group) and dissected. A highly susceptible population (HS) was included in this analysis. Cercarial shedding: Snails were individually exposed to 8 miracidia (N=45/group), and cercarial shedding was quantified. Tissue reaction: CR and LS groups presented several foci of hemocyte infiltrates in the tissues and hemocyte reactions around most parasites in the first hour. The S group presented a different pattern, since most of the parasites were morphologically intact after 36 hours. In the CR group, degenerated parasites were observed after 36 hours. After 35 days, in the group S, parasites were found in the entire area of the digestive gland, while in groups LS and CR, they were found only in a portion of the organ. Sporocysts development: The HS group presented more sporocysts than S and LS groups. The LS group presented areas of cicatricial tissue and fragmented parasites. The CR group is under analysis. Cercarial shedding: The infection rates were: LS=3%, CR=47%, S=91%. The number of cercaria released was: S(198,202) > CR(94,212) > LS(1,353) and p<0.001. The degree of compatibility of these groups was: LS=0, CR=II, S=III. The results indicate that hemocyte reaction was an important component, that negatively influenced the development of sporocysts. The results also show that crossings induced a reduction in compatibility, since reactions occurred mainly in snails with low compatibility to the parasite and in those resulting from crossings with susceptible snails. Considering these findings, the population with low compatibility to *S. mansoni* LE strain is a potential experimental model in studies of the parasite-host relationship. More studies of this population will enrich knowledge about these interactions and may contribute to the control of schistosomiasis in the future.

#### KEYWORDS

Crossings; Schistosomiasis; Host-parasite Interaction; Susceptibility; Hemocyte Reaction.

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