



BIOMEDICAL RESEARCH INSTITUTE

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Control of rotifers and other commensals found in *Biomphalaria glabrata* and other snail colonies

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Introduction

There are several invertebrates that can interfere with the growth of *Biomphalaria glabrata* and/or the development and release of cercariae from the infected snails in a laboratory setting. Among the most common are rotifers, ostracods and oligochaetes. Field-collected snails may harbor a wide variety of contaminants, some of which, if left unchecked, may have a deleterious effect on a laboratory-maintained snail colony. A variety of techniques have been suggested to control or eliminate these contaminants, but in many cases, one may have to completely restart the snail colony with uncontaminated snails or egg masses. This section will discuss control methods that our laboratory has used to limit the populations of contaminating rotifers, ostracods and oligochaetes.

Materials

Dissecting microscope

Spray apparatus (Deck sprayer, 2-gallon, pump-type, typically found in hardware stores)

Artificial Pond H2O (water)

Q-tips

Urethane

Rotifers

Rotifers are frequent contaminants in aquaria, and many will adhere to the shells of *B. glabrata*, forming a mat of organisms in the center whorl. The rotifer *Rotaria rotatoria* has been shown to emit Schistosome Paralysis Factor (SPF) that can cause a reversible paralysis of *S. mansoni* cercariae and limit cercarial release from patent snails (1). If rotifers are found as a contaminant of the snails in a laboratory, limiting their numbers is essential if active cercariae are a necessary part of the lab's experimental procedure. Rotifers can be removed from the shells of *B. glabrata* by mechanical means.

Procedure

- One effective rotifer removal method is to direct a stream of water onto the surface of the snail shell. The force of the stream is provided by a pump-type deck sprayer. Alternatives include using a perfusion pump attached with tubing and a 20-22 gauge needles or by a commercial dental water pick. *Always use personal protective equipment (PPE) and safe handling practice if the snails are patent and shedding cercariae. Schistosoma cercariae can penetrate exposed skin.*
- Alternatively, a Q-tip may be used to swab the snail shell surface to reduce the rotifers to manageable levels. Whatever the means of mechanical removal used, the procedure should be repeated whenever rotifers are observed building up again on the shells. *Periodic examination*

of snail shell surfaces under a dissecting microscope is highly recommended to prevent rotifer problems.

Ostracods

There are several reports in the literature about the effect of ostracods on snails. These commensals tend either to attack the bodies of the snails or to disturb them enough to cause them to withdraw into their shells and prevent the snails from feeding. Ostracod eggs can be harbored in the snail and passed through the intestines. Continuous removal of snail feces may eventually eliminate the problems caused by these organisms.

Oligochaetes

Little is known about the interaction of oligochaetes and *Biomphalaria* spp., but they are frequently found as contaminants of snails collected from the field. Michaelson reported that the oligochaete, *Chaetogaster limnaei*, had a dramatic effect on infection of the snail, but that they could be eliminated by immersing the snail in 1% urethane for 10-20 minutes.

References

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