



BIOMEDICAL RESEARCH INSTITUTE

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## Snail Gel

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*(Modified by Kenny Tran 06/2019)*

### Introduction

Snail gel is an ideal food supplement to the lettuce and algae (*Nostoc* spp.) that is normally fed to laboratory snail colonies. Currently, the NIH NIAID Schistosomiasis Resource Center uses Snail Gel to feed neonates, juveniles and adults of *Biomphalaria glabrata* and *Bulinus truncatus*. Adult *Oncomelania hupensis* also enjoy Snail Gel.

### Materials and reagents

500 ml Artificial Pond H<sub>2</sub>O

2 g sodium alginate (Alginic acid-sodium salt [Sigma A-2033, medium viscosity, sold as a fine powder])

8 g barley grass powder (available at health food stores, Amazon.com)

2 g wheat germ (available at grocery stores)

2 g fish food (Tetramin – Large Tropical Flakes)

1 g powdered milk

1 liter 2% calcium chloride solution (Sigma C-4901, anhydrous)

### Equipment

Electric stirring hot plate

1000 mL beaker

Large stirring bar (1.5 inch)

Thermometer

Mortar and pestle

Two flat plastic 7" x 9" x 6" pans

### Procedure

- Heat 500 mL deionized water to **~70-80°C** in a 1000 ml beaker with a large stirring bar. *Do not boil at any time.*
- Add ingredients in the exact order listed above.
- Add sodium alginate gradually to the 500 mL water. Using a stir stick, agitate and mix the water to thoroughly dissolve the sodium alginate.
- Continue to add small amounts of the sodium alginate (pausing after each addition to agitate and dissolve the powder).
- Once the sodium alginate is dissolved, turn off the heat source.

- Add the barley grass powder to the solution and stir until homogenous.
- Pulverize wheat germ, fish food and powdered milk to a fine powder with the mortar and pestle; gradually add the powder to the barley grass suspension, continuing to stir.
- Stir for a few minutes.
- Pour the hot suspension into flat pans to cool to room temperature. For 500 mL of food, two 7" x 9" x 6" pans will provide adequate area for a ½" depth gel.  
*The suspension should not exceed ½ inch in depth. We use 2 plastic 7" x 9" repurposed plastic mouse cages for cooling the suspension.*
- Allow the suspension to cool at room temperature for 2-3 hours without disturbing the pans.
- After the suspension is cool and partially solidified, gently flood each pan with the 2% calcium chloride (CaCl<sub>2</sub>) solution until the gel is well covered. *In order not to disturb the gel, slowly pour the calcium chloride solution over a glass plate onto the surface of the gel.*
- Place the pans in the refrigerator (4°C) overnight.  
*The gel will shrink after 2-3 hours in the cold CaCl<sub>2</sub>.*
- Pour off the CaCl<sub>2</sub> and rinse the gel 1-2 times with water. The gel is now firm enough to hold with a gloved hand while rinsing.
- Store the remaining gel at 4°C in the 7" x 9" x 6" pan until use.
- The gel may be fed to snails by pinching off a section approximately 1" x 1" , or can be sliced into cubes. *Be careful not to overfeed the snails.* If the gel is not eaten within a day or two, remove from the aquaria; excess food will foul the water.

#### **Follow-up comments/recommendations**

The Snail Gel will be useable for about 1 week before it deteriorates. Any remaining gel should be disposed of and a new preparation made.

#### **References:**

1. Formula adapted from: Standen, O.D. 1951. Some observations upon the maintenance of *Australorbis glabratus* in the laboratory. *Annals of Tropical Medicine and Parasitology* **45**: 80-83.
2. Tucker, M. S., Karunaratne, L. B., Lewis, F. A., Frietas, T. C., and Liang, Y-S. 2013. Schistosomiasis, in *Current Protocols in Immunology* 19.1.1-19.1.57, John Wiley and Sons, Inc., Nov 2013 in Wiley Online Library (wileyonlinelibrary.com). doi: 10.1002/0471142735.im1901s103.

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