

## Gel Snail Food

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*(Modified by Connor Siegel, Nov. 2016)*

### Introduction

This gel preparation is an ideal supplement to the lettuce and algae (*Nostoc*) that is normally fed to adult snails. Currently this 'gourmet' gel is used to feed neonates, juveniles and adults of *Biomphalaria* and *Bulinus* species. Adult *Oncomelania hupensis* spp. also enjoy snail gel.

### Ingredients

500 ml deionized water  
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)  
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  
Snail Scoop

### 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 DI 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 in the mortar and pestle. Then 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" 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 deionized 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" per 50 snails (or can be sliced into cubes). *Be careful not to overfeed the snails.* If the gel is not cleared within a day or two, bacteria may begin to grow and foul the water.

### Comments

The gel snail food shelf life ~7days at 4°C. After one week, the gel will start to deteriorate. After 7 days, any remaining gel should be disposed of and a fresh batch prepared.

### References:

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.

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., (R. Coico, Ed). Published online November 2013 in Wiley Online Library (wileyonlinelibrary.com). doi: 10.1002/0471142735.im1901s103.

C., and Liang, Y-S. 2013. Schistosomiasis, in *Current Protocols in Immunology* 19.1.1-19.1.57, John Wiley and Sons, Inc., (R. Coico, Ed). Published online November 2013 in Wiley Online Library (wileyonlinelibrary.com). doi: 10.1002/0471142735.im1901s103.

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., (R. Coico, Ed). Published online November 2013 in Wiley Online Library (wileyonlinelibrary.com). doi: 10.1002/0471142735.im1901s103.

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