**Artemia Decapsulation**

**MATERIALS**

15 oz can of dried Artemia cysts (approximately 430 g)
4.3 L ~6% laundry grade bleach, chilled to 4ºC
1.25 kg Rock Salt (NaCl)
125 ml 40% Lye (NaOH) solution (w/v)
30.0 g Sodium thiosulfate ($Na_2S_2O_3$)
16 L Hatching Cone with aeration
125 um mesh bag (Aquatic Eco-Systems PMB3, 125 micron x 18")
Several 3-5 L beakers
(1-2) Squirt bottles - squeeze type

**SOLUTIONS**

*Solutions should be prepared in advance - these need to be chilled to 4ºC prior to use.

*Bleach, ~6% laundry grade

Chill a large bottle of bleach (need 4.3 L) in the refrigerator overnight at 4ºC.

*25 ppt Salt Solution

Combine: 50 g Rock Salt (NaCl)
To 2.0 L with tap water
Stir to dissolve completely.
Refrigerate overnight at 4ºC.

*40% Lye (NaOH) solution (w/v)

Combine: 200 g Lye (NaOH)
To 500 mL with tap water
Stir to dissolve completely.
Store in refrigerator (4ºC)

Buffered Salt Solution

Combine: 2L 25 ppt Salt Solution, prechilled to 4ºC
125 mL 40% Lye Solution, prechilled to 4ºC

1.0% Sodium Thiosulfate

Combine: 30 g sodium thiosulfate
To 3.0 L with tap water
Stir to dissolve.

Saturated Brine

Combine: 1.2 kg Rock Salt
To 4.0 L with tap water
Stir to dissolve.

**PROCEDURE**

1. **Cyst hydration:** Hydrate one full can of dried cyst in 5 L of tap water in a hatching cone with aeration for 1 hour at room temp. Examine the cyst under a stereoscope with top lighting before proceeding. Dry cysts are dimpled, resembling a deflated basketball, whereas fully hydrated cysts are completely spherical in shape. The cysts must be fully hydrated prior to the decapsulation step. If cysts are not completely spherical after 1 hour, continue the hydration process (for a maximum of 2 hours), checking the progress of the cysts under a microscope every 15 min.

2. **Filter and rinse cysts:** Collect the hydrated cyst in a 125 um mesh bag and rinse with cool tap water.

3. **Transfer cysts back to the cone** with the chilled Buffered Salt Solution and aerate (save back a filled

squirt bottle of salt solution to help transfer cysts to cone).

4. **Decapsulation:** Add the chilled bleach (4.3 L) to the cone and continue aeration. Watch the cysts turn from brown to grey to orange, When the cysts are 90% orange, stop the reaction by quickly siphoning the cysts through a 125 um mesh bag and rinsing well with cool tap water.

5. **Neutralization of residual chlorine:** To neutralize any residual chlorine transfer the mesh bag to a clean 4 L beaker and pour the 1.0% Sodium Thiosulfate (3L) into the bag. Soak the cysts in the sodium thiosulfate solution for ~1 min, then rinse the cysts with dechlorinated tap water.

6. **Dehydration for long-term storage:** Transfer the cysts back to the cone with 4 L of saturated brine and aerate for 18-24 hours (save back a filled squirt bottle of saturated brine solution to help transfer cysts to cone). Add granular NaCl as needed to keep the solution saturated during the dehydration process. Transfer dehydrated cyst to (5 or 6) 1 L bottles and fill with fresh saturated brine. Store in refrigerator.