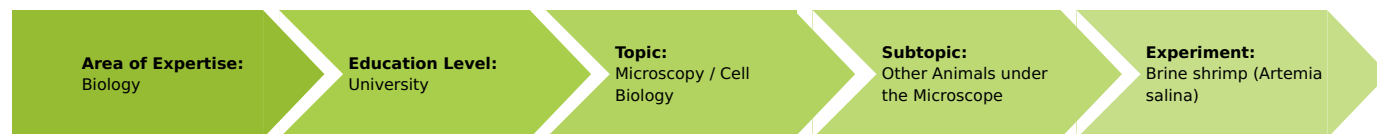


Brine shrimp (*Artemia salina*) (Item No.: P1443901)

Curricular Relevance



Difficulty



Easy

Preparation Time



10 Minutes

Execution Time



30 Minutes

Recommended Group Size



1 Student

Additional Requirements:

- Brine shrimp eggs (*Artemia*) with Artemia nutrient salt

Experiment Variations:

Keywords:

Task and equipment

Information for teachers

Information

There is a genus of very small crustaceans living in salt lakes. These animals feed on other microscopic organisms such as algae and bacteria. The brine shrimps lay eggs from which larvae develop. These grow up to juvenile crustaceans within a few weeks. When salt lakes dry up most of the organisms dwelling in them perish. But what happens to the eggs? This you shall find out!

Information on obtaining materials

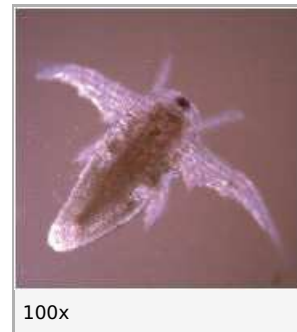
Brine shrimp eggs (eggs of *Artemia salina*) and Artemia salt enriched with phytoplankton is obtainable at pet shops or from a mail-order aquarium supply company on the internet.

Information on Artemia

Like the water flea (*Daphnia pulex*) and the tadpole shrimp (*Triops spec.*), brine shrimps (*Artemia salina*) belong to the class of crustaceans (*Crustacea*) and to the order of brine and fairy shrimps (*Anostraca*). Brine shrimps are typical dwellers of inland salt lakes, for example, salt lakes in potash mines where they occur in great abundance due to a lack of competitors. Their dormant eggs accumulate in thick layers on the surface and can be skimmed off.

Information on how to proceed

The amounts of salt and water (6g and 200ml) are suggested to be used by a group of students. If Artemia larvae are to be observed over several weeks, a larger amount of the solution (25 to 35g per liter of water) should be added into the aquarium tank and a simple means of aeration should be provided (e.g. with an airstone). The temperature optimum ranges between 20 and 30°C. Note: All beakers from the student experiments are transferred into one collective aerated tank after 3 days.

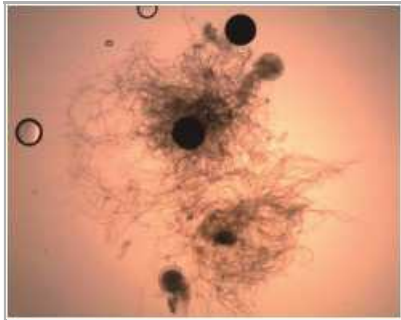


Additional information and ideas

1. Vital staining of Artemia larvae
A vital stain with Neutral Red (Experiment 2.3) can be performed as an additional experiment.



1. Obtaining eggs for additional experiments
The eggs of the brine shrimp will float on the surface. If the eggs are to be harvested for additional experiments, the aeration is first switched off, then the eggs are skimmed from the surface with a fine-meshed sieve or strainer and dried.
2. Brine shrimp as fish food
Aquarium supply shops offer live brine shrimp as food for young aquarium fishes. We may as well feed those we breed ourselves. To this end, we have to skim a small amount from the water using a tea sieve and rinse it carefully with tap water. The animals will survive several hours in freshwater and can be eaten during this time period.
3. Water fungus test
Brine shrimp will die as a result of bacterial or viral contamination or insufficient air supply. Aquatic fungi will eventually populate the water tank, representing very interesting objects for microscopy.



Aquatic fungus, 40x



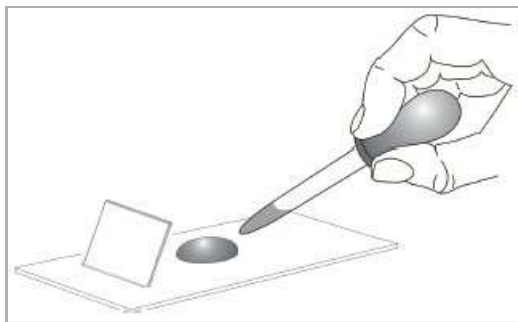
Aquatic fungus, 400x

Brine shrimp (*Artemia salina*) (Item No.: P1443901)

Task and equipment

Task

Determine whether crustaceans can develop from the dried-up eggs.

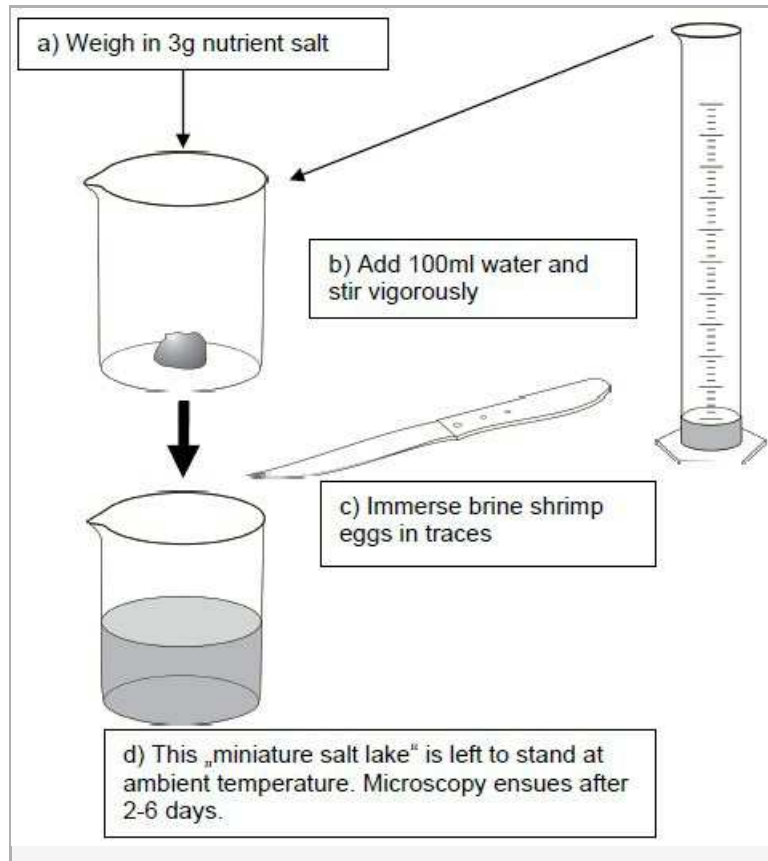


Equipment

Position No.	Material	Order No.	Quantity
1	Euromex BioBlue BB.4250 microscope	EUR-BB-4250	1
2	Microscopic slides, 50 pcs	64691-00	1
3	Cover glasses 18x18 mm, 50 pcs.	64685-00	1
4	Graduated cylinder 100 ml, PP transparent	36629-01	1
5	Beaker, low form, plastic, 100 ml	36011-01	1
6	Precision Balance, Sartorius ENTRIS822-1S, 820 g / 0,01 g	49295-99	1
7	Weighing dishes, square shape, 84 x 84 x 24 mm, 500 pcs.	45019-50	1

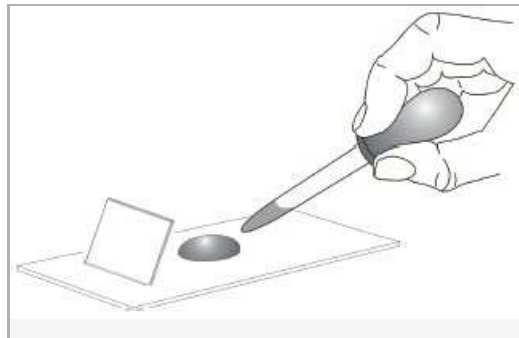
Set-up and procedure

1. Reproduce living conditions similar to those which brine shrimps will encounter in a salt lake.



2. Microscopy

- Examine a water sample under the microscope with lowest and intermediate powers.



- Look under the microscope on several days in order to follow brine shrimp development.
- Keep records of your observations in the report.

Report: Brine shrimp (*Artemia salina*)

Result - Observations (10 points)

Note down your observations.

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