

## P6. A Basic Study on Sea Monkey Cultivation Using Deep Ocean Water

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### 1. Introduction

Sea monkeys are a species of sea shrimps (*Artemia salina*). In 1960, Dr. Harold Von of the United States discovered the state of sea shrimps that had been hidden, and developed hybrid super sea monkeys through hybridization. The sea monkeys are born with one eye and become to have two eyes as they grow. Sea monkeys breathe through the long tube that looks like a foot, as if they inhale air in the water through a straw. Since sea monkeys, which are very active, are sensitive to light, they can adjust their movements as they like using light. Sea monkeys mate to reproduce when they have grown to some extent. Sea monkeys grow up to 1.5cm~2cm and take at least 4~5 weeks to fully grow. However, no more information or study is available. This study is intended to cultivate sea monkeys using deep ocean water, which is clean and eutrophic, and other different kinds of water, and compare the growth processes. In addition, the results will be compared so that the findings can be used as basic data for the culture method using deep ocean water.

### 2. Experimental Materials and Methods

For the present experiment, eggs, a water purifying agent, feed, barrels, and spuits in addition to surface water(①), raw deep ocean water(②), and service water(③) were prepared. The experiment began with the three kinds of water in the same environment. Hatching sequences in the three kinds of water were recorded, and the survival rates, growth, and the amounts of activities in each water were recorded and compared every day. Under the same conditions, the eggs and a water purifying agent were put into deep ocean water, surface water, and service water and oxygen was supplied using spuits. Thereafter, after sea monkeys hatched, oxygen was supplied once a day. The sea monkeys

began to be supplied with feed from five days after hatching and were supplied with feed at intervals of five days thereafter.

### 3. Conclusion

Sea monkeys hatched first in surface water (①) on the 2nd day of experiment, followed by raw deep ocean water(②) and service water(③) in order of precedence. When one week had passed from the beginning of experiment, 25 sea monkeys hatched in (①), 20 in (②), and 15 in (③), the amount of activities was modest in (①), large in (②), and small in(③), and the average growth was 30mm in (①), 30mm in (②), and 20mm in (③). When two weeks had passed, 20 sea monkeys survived in (①), 17 in(②), and 10 in(③), the amount of activities was modest in (①), large in (②), and small in(③), and the average growth was 50mm in (①), 50mm in (②), and 25mm in (③). When three weeks had passed, 15 sea monkeys survived in (①), 14 in(②), and 3 in(③), the amount of activities was modest in (①), large in (②), and small in(③), and the average growth was 70mm in (①), 110mm in (②), and 25mm in (③). When four weeks had passed, 4 sea monkeys survived in (①), 10 in(②), and 0 in(③), the amount of activities was small in (①), large in (②), and none in(③), and the average growth was 70mm in (①), 110mm in (②), and 25mm in (③).

When five weeks had passed, all but five sea monkeys in raw deep ocean water were dead, the activity of the living sea monkeys was large, and the size was 130mm.

These results indicate that although surface water showed higher hatching speed or hatching rate than deep ocean water, deep ocean water was more excellent in terms of the amount of activities, sizes, and survival rates. Service water showed lower values than surface water and deep ocean water.