

Amphibian Maintenance Facilities at Sogang University, Korea

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Maintaining a large number of axolotls can be problematic due to the time needed for maintenance and space needed for containers. Here, I would like to briefly describe how we have overcome some of these problems in our axolotl colony facility.

1. Water supply and treatment procedures

We use charcoal-filtered tap water that has been aerated overnight after filtration.

2. Container types and sizes

A. For larvae up to 4 cm in size

We use custom-made compartmentalized cages to prevent cannibalism among small larvae.

B. For larvae larger than 4 cm in size

Animals are housed individually in round plastic food storage containers. The size of the container is dependent on the size of the animal.

C. For adult animals

For large stock animals, we use large aquaria connected to a continuously circulating filtering system (Figure 2). One filtering unit is composed of eight aquaria (in two rows of four each on steel shelves) and one filter box. The aquaria are connected by pipes that lead to a common filter box, located beneath the shelf. Each tank has a separate inlet valve which controls inflow, and each row of tanks

has a master flow valve. The filtering system is designed to circulate water through the filter box beneath the aquaria. Within the filter box is a micro habitat which consumes organic materials from food debris or excretion. Except for while feeding and retrieving uneaten food (about 4 - 5 hours a day), water is continuously circulated. The whole system requires complete cleaning only once a year.

3. Food supply

Young larvae (up to 1 month from hatching) are fed freshly hatched brine shrimp.

Larvae and adults are routinely fed chopped beef heart, occasionally supplemented with beef liver.

4. Daily routine

Typically, animals are fed in the morning, and cleaning is done in the afternoon.

A. Small larvae:

The compartmentalized inner cage is slowly raised and put into a clean outer cage with fresh water in it. Any trapped food or droppings are siphoned out.

B. Medium sized larvae:

Water in the plastic container is exchanged for clean aerated filtered water.

C. Adult axolotls:

For the animals housed in the aquaria, uneaten food is retrieved and water circulation is resumed.

5. Lab space used

All animals are in a single room measuring 8 m (L) X 5 m (W) X 2.5 m (H). Room temperature is kept at 20 °C, with 12 hours light and 12 hours dark cycle.

6. Time required per day/ week

Feeding and cleaning 20 cages, 100 plastic containers, and the aquaria takes about 1 to 2 hours for two people per day. However, this varies with the number of animals. Keeping stock animals requires no more than 30 minutes, since it is semi-automated.

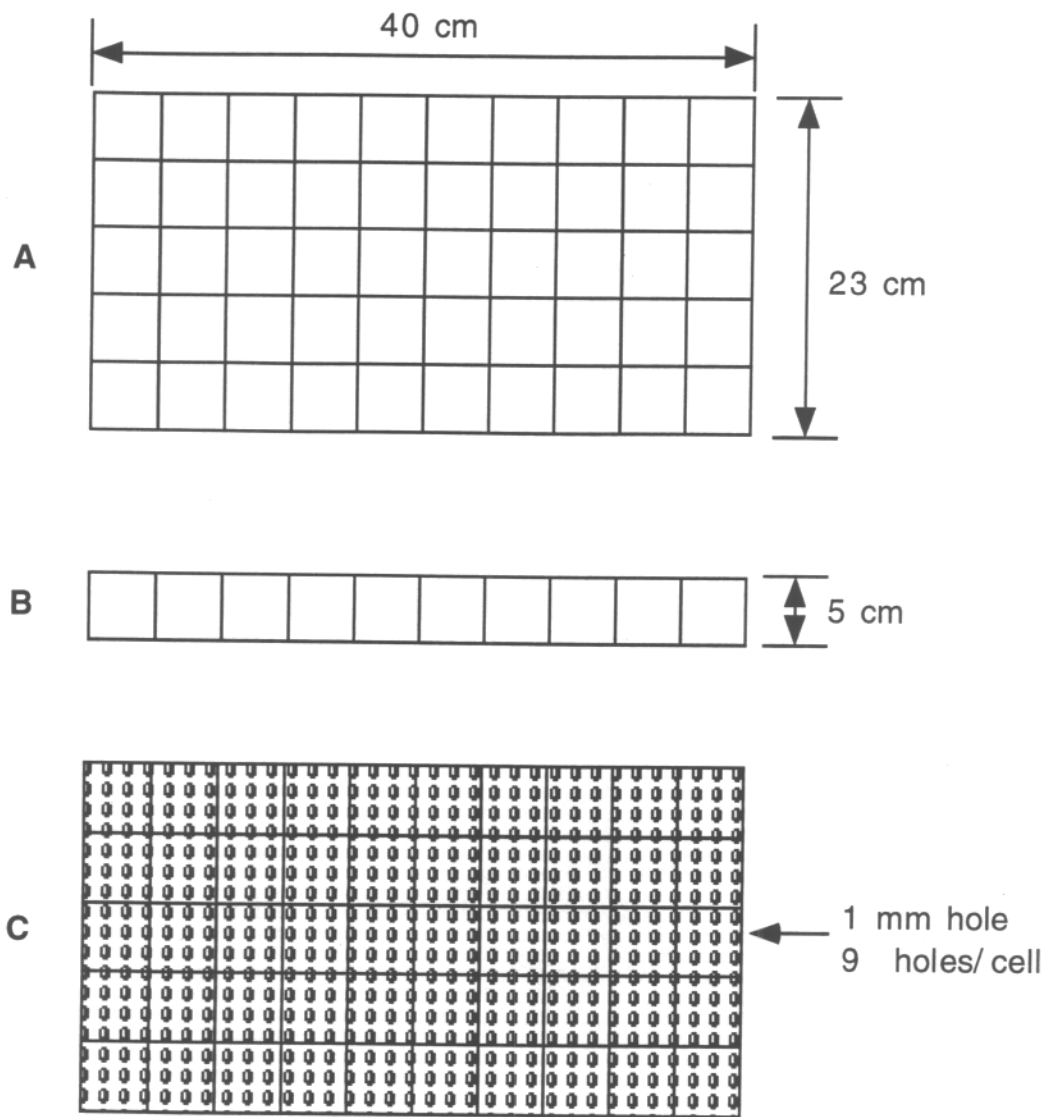


Figure 1. Compartmentalized Cage
(inner cage)

A: top view, B: side view, C: bottom view

<1> inner cage

Material: acrylic plate, 3 mm thick

Dimensions: 40 cm (L) X 23 cm (W) X 5 cm (H) with 50 cells

Cell size: 4.5 cm (L) X 3.7 cm (W) X 5 cm (H)

The bottom plate of the each cell has 9 holes (1mm in diameter)

<2> outer cage

A plastic storage box (44 cm (L) X 27 cm (W) X 11 cm (H)) from a local store is used to hold water.

<3> setting

The outer cage is partially filled with filtered water, and the inner cage is slowly lowered into it. The water level is adjusted to a depth of 3.5 cm. Larvae are placed into individual cells. Once set, this unit can be stacked or put onto shelves for better ventilation and lighting.

<1> Aquarium

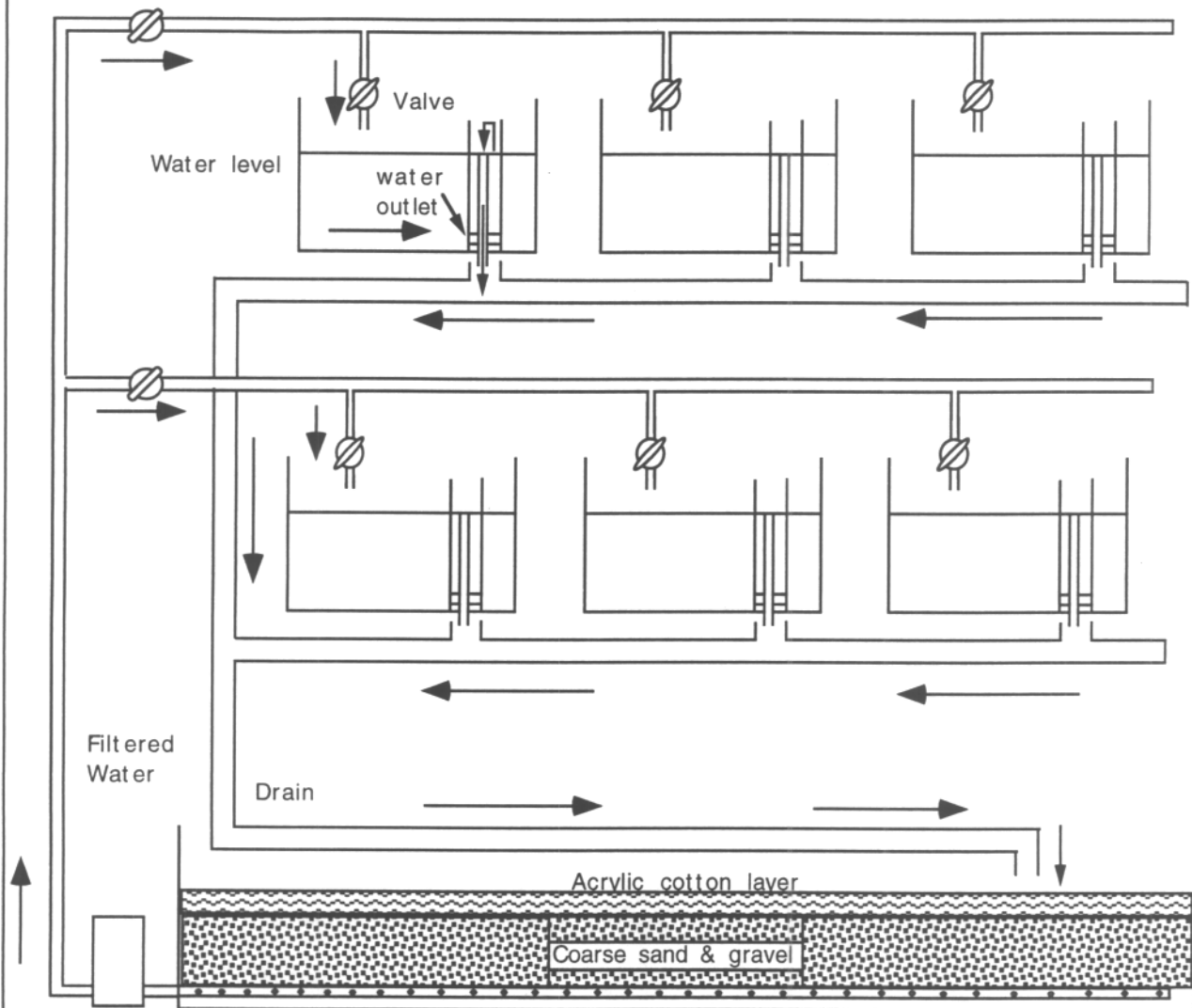
Material: glass plate 5 mm thick (oven-tempered glass plate with a hole of 3 cm in diameter in the bottom for overflow pipe) Dimensions: 40 cm (L) X 40 cm (W) X 30 cm (H) for 6 - 8 animals

<2> Filtering system

Components: PVC pipe, PVC valve, PVC filter box, electric water pump

Filter box dimensions: 180 cm (L) X 30 cm (W) X 30 cm (H) for 8 aquaria

Filtering material: coarse sand and coarse gravel encased in plastic nets, acrylic cotton.



Circulation Motor
with capacity of 35 L/m in

Pipe size: inlet water pipe (3 cm OD), drain water pipe (7 cm OD)

inside pipe in aquarium (3 cm OD), outside pipe in aquarium (7 cm OD)

→ : direction of water flow

Figure 2. Filtering System for Adult Axolotl