

**ABSTRACT.**

Physiological studies on aestivation  
in Pomacea urceus.

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This study clarified aspects of the biology of Pomacea urceus, important in the transition from activity to aestivation, and in the aestivating state.

After the onset of conditions which promote desiccation of the animal, the transition to aestivation, as indexed by changes in water loss and oxygen consumption, took about 3 weeks. The time to aestivation,  $T_a$ , was longer in juveniles than in adults. Depression of metabolism during the transition to aestivation was greater in juveniles than in adults. Still, aerobic metabolic rate in aestivation was higher in juveniles than in adults, perhaps allowing juveniles to maximize growth and



maturational gains during this adverse period. In juveniles, total energy stores at aestivating metabolic rates would last for about 4-4.5 months, the duration of the dry season. In anoxia, juveniles accumulated lactate at a rate similar to adults, but they used glycogen at lower rate. This suggests that juveniles may be supplementing their energy supply by gluconeogenesis during anaerobiosis.

At low humidities  $T_a$  is relatively temperature independent, partly because evaporative cooling buffers body temperature, and partly because of a balance between temperature based increases in water loss and metabolic water production. At high humidities, both temperature buffering and water loss are minimal, but  $T_a$  increases with temperature. It is argued that these observations reinforce the idea that body fluid osmolarity or volume may be critical elements in triggering the onset of aestivation.