Comparative Embryonic and Larval Development of Purebred, Hybrid and Allotriploid Catfish (*Clarias macrocephalus* Gunther X *Clarias gariepinus* Burchell)

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Abstract

Inland aquaculture is one major source of livelihood in the Philippines and in other parts of the world. Catfishes, which include the African species, *C. gariepinus* and the native species, *C. macrocephalus* are the two species cultured in the Philippines. The native species is better liked by the local folk because of its soft and savory flesh. However, it is a slow grower and its culture is not so widespread. On the other hand, *C. gariepinus* is a fast growing species which made it popular among fish farmers.

Faster growth rate can be achieved by making the fish sterile. Two ways to attain sterility are through triploidy and interspecific hybridization.

Developmental rates of purebred, hybrid and allotriploid catfish crosses (*C. macrocephalus* X *C. gariepinus*) were observed and documented using a Nikon camera mounted on a Motic photomicroscope. Induction of triploidy was done through temperature shock.

Developmental stages observed for purebreds, hybrids and allotriploids were essentially the same, differing only in their duration rates. Early developmental stages include cleavage (2-cell stage, 4-cell stage, 8-cell stage, 16-cell stage, 32-cell stage, 64-cell stage, and morula stage), gastrulation, embryo formation, somite formation and hatching. For all stages observed, somite formation was observed to be the longest as accompanied by organ differentiation. Both allotriploid crosses have essentially the same developmental rates, differing only on their hatching time. Native catfish eggs develop slower than that of the African catfish.

Newly hatched larvae are translucent with a prominent yolk sac. A slight pigmentation was observed in *C. macrocephalus* larvae as early as Day 1 post-hatching. In hybrid larvae, pigmentation was established at Day 2 post-hatching and was completed at Day 5 post-hatching in which catfish morphological features are already distinct.