

Ovaprim treatment promotes oocytes development and milt fertilization rate in diploid and triploid African catfish (*Clarias gariepinus*).

ABSTRACT

Triploid fish are increasingly used in aquaculture because they are generally unable to reproduce successfully. Energy is channeled into somatic growth rather than gonadal development, and in the event of escape, the animals are unlikely to breed successfully among themselves or with wild conspecifics. This study tested the ability of recently matured triploid African catfish (*Clarias gariepinus*) to produce and fertilize eggs with and without ovaprim treatment. Triploid females did not show the increase in ovary size observed in diploid members of the same cohort between 8 and 9 months of age, or the coincident decrease in visceral fat deposits, and this was unaffected by up to 5 weekly i.m. injections of 0.5 ml kg⁻¹ Ovaprim. However, we observed advanced vitellogenin (Vtg) sequestration in oocytes of triploid females, albeit to a lesser degree and with lesser cortical alveoli, compared to oocytes from diploid cohort members. Histological sections revealed a positive trend of oocyte development up to the third weekly ovaprim injection followed by a negative gonadal development in weeks four and five. Milt from triploid males injected 9–12 h earlier with 0.25 ml kg⁻¹ ovaprim i.m. fertilized more diploid eggs than milt from untreated triploid males (30 vs. 20%), but none of the developing embryos of triploid paternity survived to hatch. In contrast, milt of diploid males fertilized 49% of eggs, and 20% of the developing embryos hatched successfully. These rates were improved in ovaprim-injected diploid males to 70% fertilization and 33% hatch. This study demonstrates potential of overcoming non-viability of eggs from triploid female African catfish, and enhancing the ability of triploid milt to fertilize eggs.

Keyword: *Clarias gariepinus*; Embryonic development; Milt fertility; Oocyte; Ovaprim; Triploidy.