



# Impacts of stocking on the genetic diversity of *Colossoma macropomum* in central Amazon, Brazil

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Genet. Mol. Res. 15 (2): gmr.15027700

Received September 22, 2015

Accepted December 8, 2015

Published April 7, 2016

DOI <http://dx.doi.org/10.4238/gmr.15027700>

**ABSTRACT.** Tambaqui (*Colossoma macropomum*) is the main fish species farmed on a commercial scale in northern Brazil. In view of the current scenario of Brazilian aquaculture, studies on the genetic improvement and reproductive management of captive tambaqui are crucial in identifying the genetic variability of broodstocks and devising management practices. Genetic diversity of three tambaqui broodstocks in western Amazon was evaluated using molecular markers. Fin samples were collected from 89 fish; 38 from Balbina, 30 from a hatchery in Rio Preto da Eva, and 21 from the experimental farm of the Federal University of Amazonas (UFAM). Ten primers were used for the analysis of diversity and genetic structure. Of the 152 bands produced, 146 were polymorphic. The proportion of polymorphic loci showed little variation among the three stocks. The lowest and highest rates were found in the Rio Preto da Eva (80.92%) and Balbina (85.53%) stocks, respectively. Heterozygosity (H) and Shannon (I) indices were similar among the stocks; the lowest values were found in Balbina (H = 0.279 and I = 0.419), and the highest in UFAM (H = 0.294 and I = 0.439). Following analysis of the genetic structure and relationship, the sample was

divided into two groups, with the Balbina stock clearly deviating from the others. The results suggest that, to increase genetic variability, molecular information may be used instead of replacement of wild breeders. The groups characterized here can be used in genetic improvement programs with other tambaqui broodstocks from different areas of South America.

**Key words:** Genetic variability; Amazonian fish; Genetic structure; Broodstock; Genetic management