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PRODUCTION OF MONOSEX POPULATION IN TAMBAQUI (*COLOSSOMA MACROPOMUM*)

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Tambaqui is the main native fish species for the Brazilian aquaculture. Studies of our group confirmed that under captivity the females are heavier than males at harvesting weight of 3 kg. As the system of sex determination of tambaqui remains unknown, we tested four different doses of 17β-oestradiol administered for 6 weeks to produce monosex batches of tambaqui via the direct method. To evaluate the phenotypic sex, we analysed histologically 135 fish (average 22/treatment) and to assess whether the fish meat of treated tambaqui presented hormonal residues, an analytical method for the determination of 17β-oestradiol residues in muscle was developed and validated using high performance liquid chromatography coupled to tandem mass spectrometry (LCMS/MS). The dose 120 mg kg-1 E2 of diet administered from 14 mm length was the most effective treatment for tambaqui feminization as no males were found in the group (85% females and 15% intersex). If one considers that the intersex fish will not show precocious maturation (as males do), this percentage would not compromise the superiority of the group in weight gain. Therefore, we consider that higher oestradiol doses are unnecessary for aquaculture purposes. Regarding the food security of the technique, at a quantification limit of 0.3 ng g^{-1}, the muscle of treated tambaqui did not shown detectable E_2 residues. In conclusion, our results indicate that 120 mg kg^{-1} E_2 of diet is sufficient to eliminate the males in tambaqui population, which would increase almost 20% the profitability of the activity. Moreover, the technique is safe for human consumption as no hormone residues are found in the meat of treated fish. These data will greatly contribute for the native fish farming in Brazil since it supports the development of new techniques for the tambaqui industry.

Biography

Almeida F L has completed her PhD in 2009 from Utrecht University (The Netherlands) and has developed her Postdoctoral studies from the Institute of Marine Research of Norway. She is now a permanent Researcher at the Brazilian Agricultural Research Corporation. She has published 18 papers in reputed journals and is currently leader of four research projects, which includes international partnership, besides the collaboration of different universities and research institutes of Brazil. She has also been cooperating as a Reviewer from reputed indexed scientific journals.

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