

Phytochemicals as antistress, immunostimulant, antibacterial and antiparasitic agents for tambaqui (*Colossoma macropomum*), pintado (*Pseudoplatystoma corruscans*) and Nile tilapia (*Oreochromis niloticus*) culture - Chagas E.C., Boijink C.L., Damini L.K., Chaves F.C.M., Inoue L.A.K.A., Oliveira M.R., Majolo C.

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Fish culture has become an important industry and the constant increase in consumer demand for fish products has stimulated the intensive fish culture which generates a stressful physiological environment. This leads to suppression of the immune system and fish susceptibility to infectious diseases. In Brazil, the fish culture is based on tilapia, tambaqui, pintado, among others natives species. Diseases registered for these species are caused by *Aeromonas hydrophila*, *Flavobacterium columnare* and *Streptococcus agalactiae*, as well as caused by helminthes and protozoan species. In general, to prevent or control these parasitic and infectious diseases are used chemotherapeutics. The risk caused to humans by chemical residues in food and by antibiotic resistance being passed on to human pathogens has stimulated the studies on medicinal plants for treatment of fish diseases. Therefore, this project aims to evaluate the use of medicinal plants phytochemicals as antistress, immunostimulant, antibacterial and antiparasitic agents for tambaqui, pintado and Nile tilapia culture. For the use in assays of management, immunostimulation, control of bacterial and parasitic diseases, essential oils and extracts will be obtained on adults plants of *Lippia alba*, *Lippia sidoides*, *Ocimum gratissimum*, *Zingiber officinalis*, *Mentha x piperita*, *Chenopodium ambrosioides*, *Spilanthes acmella*, *Phyllanthus amarus*, *Phyllanthus niruri* and *Cucurbita pepo*. The results of these studies will be an important tool to support the development of bioproducts for use in fish culture as well as development of protocols for best management practices to tambaqui, pintado and Nile tilapia, which will contribute to the consolidation of production system of these species that presents huge economic importance in Brazil.

Key-words: phytochemicals, fish diseases, fish culture

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Phytochemicals as antistress, immunostimulant, antibacterial and antiparasitic agents for tambaqui (*Colossoma macropomum*), pintado (*Pseudoplatystoma corruscans*) and Nile tilapia (*Oreochromis niloticus*)



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INTRODUCTION

In Brazil, the fish culture is based on tilapia, tambaqui, pintado, among others species. Diseases registered for these species are caused by *Aeromonas hydrophila*, *Flavobacterium columnare* and *Streptococcus agalactiae*, as well as caused by helminthes and protozoan species.

To prevent or control these parasitic and infectious diseases has been stimulated the studies on medicinal plants.

OBJECTIVE

This project aims to evaluate the use of medicinal plants phytochemicals as antistress, immunostimulant, antibacterial and antiparasitic agents for tambaqui, pintado and Nile tilapia culture.

EXPECTED RESULTS

Reduce the stress responses of tambaquís, pintados and tilapias during routine aquaculture practices, such as transport and handling;

Obtain gain of performance and resistance against pathogens in tambaquís, pintados e tilapias fed with naturals immunostimulants;

Establishing the efficacy of extracts and essential oils in the control of *Aeromonas hydrophila*, *Flavobacterium columnare* and *Streptococcus agalactiae* as well as caused by helminthes and protozoans in juveniles of tambaqui, pintado and tilapia.

Support the development of bioproducts for fish culture use as well as development of protocols for best management practices to tambaqui, pintado and tilapia.

METHODS

