

## **Antiparasitic activity of the essential oil of *Lippia origanoides* (Verbenaceae) in native freshwater fish *Colossoma macropomum***

Bianca Barata Gonçalves<sup>1</sup>, Bruna Viana Soares<sup>2</sup>, Adriele Carolina Franco Cardoso<sup>2</sup>, Gracienhe Gomes Santos<sup>1</sup> & Marcos Tavares-Dias<sup>1,2</sup>

<sup>1</sup>Embrapa Amapá, Macapá, AP, Brazil

<sup>2</sup>Programa de Pós-Graduação em Biodiversidade Tropical (PPGBIO), Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil.

This study examined the *in vitro* and *in vivo* effects of the essential oil of *Lippia origanoides* on *Colossoma macropomum*. Essential oil concentrations of 10, 20, 40, 80, 160 and 320 mg.L<sup>-1</sup> were tested *in vitro* against monogenoideans *Anacanthorus spathulatus*, *Notozothecium janauachensis* and *Mymarothecium boegeri* from the gills of *C. macropomum*. Concentrations of 320 and 160 mg.L<sup>-1</sup> were 100% effective against these parasites within 20 and 60 min of exposure, respectively. The 80 mg.L<sup>-1</sup> concentration was approximately 80% effective with 3 h of exposure, reaching 100% with 6 h of exposure. The 40 mg.L<sup>-1</sup> concentration was also 100% effective with 6 h of exposure. The other concentrations were only weakly effective *in vitro*. Parasite mortality in controls (water or water + alcohol) began after 3 h, with 100% mortality after 8 h. *In vivo* tests, in which fry of *C. macropomum* were placed in baths with 20 mg.L<sup>-1</sup> of the essential oil for 60 min, and 40 mg/L for 30 min, did not lead to reductions in parasite abundances. In addition, the essential oil had an anaesthetic effect on fish. It can be concluded that the essential oil of *L. origanoides* was dose-dependent *in vitro* effect against monogenoidean parasites of *C. macropomum*. Unfortunately, the low concentrations tolerated by the fish in the *vivo* assay (20 and 40 mg.L<sup>-1</sup>) was not effective.

**Keywords:** Monogenoidea, Parasites, Medicinal plant, Blood, Tambaqui.