

ANTIPARASITIC POTENTIAL OF BIOGERMEX® AGAINST COPEPODID STAGES OF *Lernaea cyprinacea*: MIC TEST

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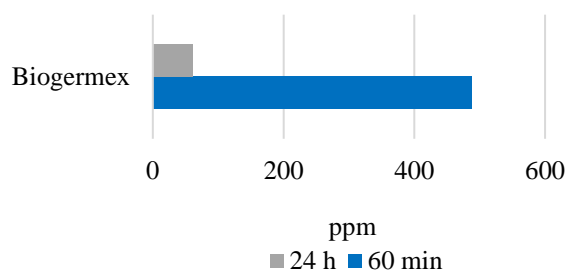
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Lernaea cyprinacea L. (Copepoda), popularly known as ‘anchor-worm’, is a crustacean ectoparasite with worldwide distribution and extremely common in freshwater aquaculture. Its impacts on fish farming are well documented, with significant losses reported for disease outbreaks that have resulted in high levels of mortality or disgusting appearance to fish consumer. Due to the high and frequently great potential damage in the use of therapeutic drugs in fish farms, increasing attention is being paid to the use of plant products for disease control/prevention in aquaculture. Biogermex® is a biodegradable organic product made from citrus extracts with low environmental impact. It acts by improving fish resistance against stress, having bactericidal and fungicidal properties. Therefore, it emerges as an alternative to conventional treatments that have already been proven to be more harmful to both fish and public health. Current analysis established the Minimum Inhibitory Concentration (MIC) of Biogermex® on parasite larvae (copepods) of *L. cyprinacea*.

Biological material was collected from broodstocks of silver catfish (*Rhamdia quelen*) reared in an earth pond at the Experimental field of fish farming (Camboriú, Santa Catarina). Thirteen animals parasitized with *L. cyprinacea* (mean 192 ± 156 parasites per fish, 40 – 479) were captured, anesthetized with eugenol (75 mg L^{-1}) and euthanized by brain commotion. Parasites were removed from the host and transferred to a petri plaque with distilled water. The egg-sacs were ruptured to release the eggs which hatched into nauplii 24 h after the process. Further, 100 μL of Biogermex® were added to the first well of the flat-bottom microplate of cell culture (96 wells) and 50 μL of distilled water were added as from the second well. A factor 2 series dilution was performed till the 19th well. Finally, 50 μL of distilled water with 5 copepods were added to each well. The test included one control group with distilled water only. Microplates were monitored during periods of 60 minutes and 24 h. MIC was determined as the lowest

dilution of the agent in which total inhibition of the larvae of the crustacean occurred (total absence of body movements) in all triplicates. The Biogermex® inhibited copepods of *L. cyprinacea* in concentrations ranging between 61 and 488 ppm, respectively, according to analysis time.

Table 1. Minimum Inhibitory Concentration (MIC test) of Biogermex® on copepod stages of *Lernaea cyprinacea* collected from silver catfish *Rhamdia quelen*



Currently, the most efficacious treatment in Brazil against *L. cyprinacea* is based on commercial solutions with trichlorophon, an insecticide with proved toxicity for fish and authorized for fish farms. Positive results showed the capacity of the Biogermex® as a prophylactic agent in fish.


Certificate of Participation

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for Poster Presentation of

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Luis Andre Sampaio, President