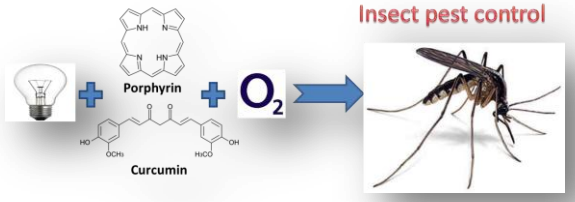
Evaluation of Photodynamic Effects of Curcumin against the Dengue Vector Aedes aegypti (Diptera: culicidae)

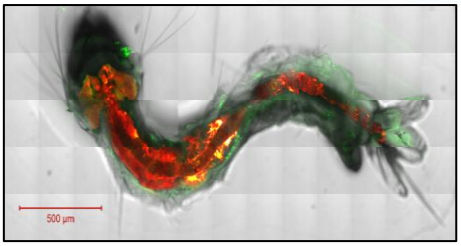
The current and widespread use of insecticides has led Aedes aegypti's mosquito larvae resistance and generated serious problems of public health and environmental impacts. The mosquito is responsible for 30.000 cases of dengue's disease/year only in São Paulo State. We propose PDT as an option for the disposal of these larvae using natural compounds such as curcumins are able to interact with light and produce highly cytotoxic reactive oxygen species that lead to death of the larvae.

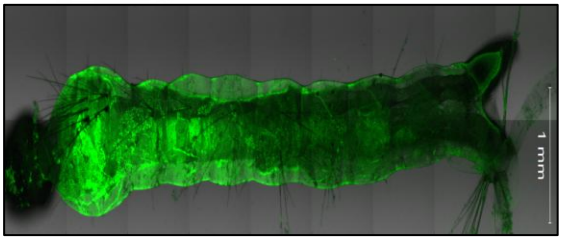
STRATEGY AND RESULTS



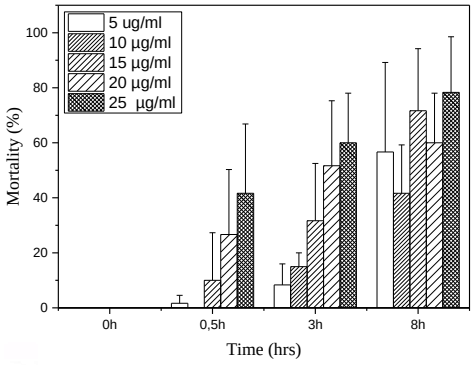
Curcumin

Confocal Microscopy





RESULTS



Significant mortality of A. aegypti larvae mortality under sun light in a presence of Curcumin

CONCLUSIONS

Both curcumins derivative exhibited phtoactivity, reaching 100% larval mortality after exposure to artificial and natural light sources.