

Achirayar Kaysorngup 2013: Using of Fungi in Controlling *Culex quinquefasciatus* Say 1823. Master of Science (Biology), Major Field: Biology, Department of Zoology.
Thesis Advisor: Associate Professor Monchan Maketon, Ph.D. 140 pages.

The objective of this research is to find the best entomopathogenic fungus from twenty isolates for controlling the larvae and adult of *Culex quinquefasciatus* Say 1823. The final concentration of each fungus used was 1×10^6 , 1×10^7 and 1×10^8 conidia/ml respectively. Results showed that *Penicillium citrinum* CM-010 exhibited 100 percent mortality on the 3rd and 4th instars larvae within only 2 hrs with highly significant difference from others fungi ($p < 0.05$). Its LC_{50} was 3×10^5 conidia/ml and LT_{50} was 1.06 hrs with 1×10^6 conidia/ml. The *P. citrinum* CM-010 was further compared with *Bacillus thuringiensis israelensis*, a bacterium obtained from the Department of Medical Science, Ministry of Health for controlling the 3rd and 4th instars larvae of *C. quinquefasciatus*. *P. citrinum* CM-010 could be able to kill all mosquito larvae within 2 hrs while *B. thuringiensis israelensis* needed 24 hrs. The field test of *P. citrinum* CM-010 in controlling the larvae showed that only 1.66 and 8.66 percent survival of the 1-2rd and 3-4th instars larvae left within 1 week. In addition, the mode of action of the fungus was studied under light microscope and transmission electron microscope exhibited a large number of the fungal conidia adhere on the digestive tract tissue.

These was only 36 percent mortality of adult mosquito resulted from *Aspergillus flavus* 001 from the concentration of 1×10^9 conidia/ml. within 1 week.

Student's signature

Thesis Advisor's signature