Pathogenicity test of the fungus *Aspergillus clavatus* on aphid *Acyrthosiphon pisum* (Aphididae)

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I- Introduction

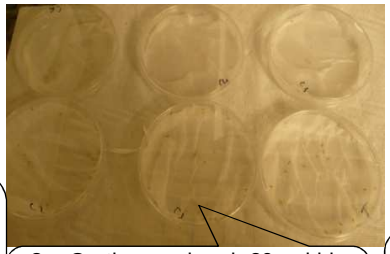
Acyrthosiphon pisum (Homoptera : Aphididae) called also pea aphid is a pest of many cultivated and wild plants, but also a vector of some viral diseases. For the control of these pests, the most widely used methods are physical, chemical and more recently integrated approches that include biological control. With the use of pathogenic agents against insects, entomopathogenic fungi are among the most promising. Their use against aphids should be beneficial in biological control.

II- Objectives

The aim of this study is to demonstrate the possibility of using an entomopathogenic strain of *Aspergillus clavatus (*already test on mosquitoes) against pea aphid.

III- Materials and methods

1- Fungus was grown on wheat bran. The spore content of the aqueous formulation was determined by haemocytometer.

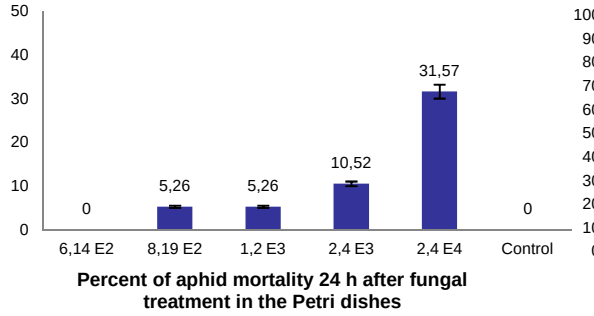


2a- On the one hand, 20 aphids were in contact with different concentrations ranging from **10^2 to 10^4** conidia/cm^2.

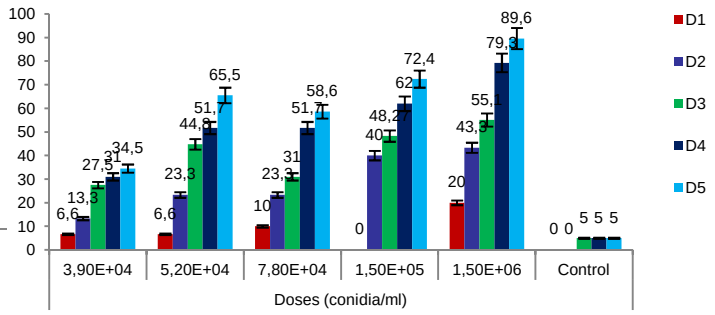
2b- On the other hand, doses ranging from **10^4 to 10^6** conidia / ml were applied on the individual young plants before deposing 20 adult aphids.

3- In the two cases, aphids are incubated at 8D/16L photoperiod, and 25°C. The mortality were recorded daily and corrected with Abbott formula.

IV- Results



Percent of aphid mortality 24 h after fungal treatment in the Petri dishes



Percent of aphid mortality whithin 5 days after conidial treatment on the plants

In the Petri dishes, Aphids were infected with fungus by contact. In 24h, mycelia have penetrate the cuticle and fungal tubes appear on the dead aphid (**a**). Sporulation continues within 48 h (**b**), and 72 h (**c**) after incubation at 75% RH showing early formation of *A. clavatus* conidia. Also, the conidial attack can stop mycosis of the aphids causing death (**d**).

Aphids in contact with treated plants are infected. Mycelia that appear within 24 hours (**e**) continue to sporulate in 48 and 72 h (**f** and **g**).

1- Fawrou Seye 1(a),Oumar Faye 2(b), Mady Ndiaye 1(c), Ebrima Njie 3(d) and José Marie Afoutou 2(e), 2008. Pathogenicity of the fungus, *Aspergillus clavatus, isolated from* the locust, *Oedaleus senegalensis, against larvae of the* mosquitoes *Aedes aegypti, Anopheles gambiae and Culex Quinquefasciatus.* Journal of Insect Science: Vol. 9 | Article 53

2-CHEN Chun & FENG Mingguang, 2002. Evidencefor transmission of aphid pathogenic fungi by migratory flight of *Myzus persicae* alates Chinese Science Bulletin Vol. 47 No. 23

Conclusion: The entomopathogenic fungus *Aspergillus clavatus* is susceptible against *A. pisum*. Investigations should be made to study its action on the reproduction. Therefore, it could be introduced along with other fungi found in the literature as a biological control agent against aphids.