Occurrence of Entomopathogenic fungi in grain Aphids in Upper Egypt, with Reference to certain Pathogenic Tests using Scanning Electron Microscope.

5- B.F.G. Fahmy ; Nesreen M.F. Abou Ghadir ; S.H. Manaa and M.F. Abou Ghadir

Abstract:

The study was carried out on cultivated wheat fields at three governorates of Upper Egypt, Assiut, Sohag and Qena. The entomopathogenic fungi naturally infecting cereal aphids were surveyed, and identified. The dominant occurrence of each fungus at the studied fields was estimated. Four entomopathogenic fungi were identified, i.e.: Cladosporium cladosporioides (Fresen), Beauveria bassiana (Balsamo), Paecilomyces variotii (Wise), and Metarhizium anisopliae (Metchnikoff). The pathogenic laboratory tests were carried out to explain the sensitivity and ability of the subjected aphids to fungal infestation. The mortality of grain aphids due to these fungi was assayed and evaluated. C. cladosporioides fungus showed great ability to spread its hyphae and condiospores on the target aphid and killed it. On the other hand the conidiospores germinated where formed germ tubes and also formed infective hyphae like-spear for mechanical pressure and to easy direct penetrate of insect cuticle. Scanning electron microscope revealed that B. bassiana condiogenous cells are carrying conidia single, spherical or subspherical conidiospores were shown penetrating the integument of insects. Meanwhile, the entomopathogenic fungus also was able to infect and kill the target insects. Data also revealed that the closely attachment of the fungal mycelium to the grain aphid cuticle may accelerate its germination and conditioning it for penetrating the target host. Data of scanning electron microscope is considered the perfect tool to investigate and observe the mode action of fungal pathgenicity against insects where permit to explain how the entomopathogenic fungi are able to colonize and infect the target insects.

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