

**ANGULAR BACTERIAL LEAF SPOT OF CUCURBITS  
CAUSED BY *Pseudomonas syringae* pv. *lachrymans*  
AND ITS CONTROL**

By

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## ABSTRACT

**Mohamed Ahmed Mohamed Gaber: Angular Bacterial Leaf Spot of Cucurbits Caused by *Pseudomonas syringae* pv. *lachrymans* and its Control. Unpublished PhD. Thesis, Department of Plant Pathology, Faculty of Agriculture, Ain Shams University, 2018.**

Cucurbit crops are being widely used in many countries all around the world including Egypt and the United States of America for domestic consumption and exportation. In this study, five isolates were isolated from Florida and Georgia (PsM\_A, PsM\_B, PsM\_C, PsM\_D and PsM\_E). Isolates were phenotypically identified as *Pseudomonas* spp. using the LOPAT scheme (levan production, oxidase test, potato rot test, arginin dihydrolase and hypersensitivity for tobacco plants).

Isolates were then genetically identified as *P. syringae* using multilocus sequence analysis with 4 housekeeping genes (*gyrB*, *rpoD*, *gapA* and *gltA*), and the results showed that the isolates of the causal agent responsible for the disease outbreak in Florida and Georgia (2013-2015) fall in the genomospecies 1 and are genetically distinct from *P. syringae* pv. *lachrymans* that falls in genomospecies2.

Based on average nucleotide identity results, all strains isolated from the 2013-2015 disease outbreak fall in the genomospecies 1 and were genetically distinct from *P. syringae* pv. *lachrymans*, confirming the results from the MLSA.

High level of variation is present in the type 3 secreted effector gene profile and toxin profile for the collected isolates explaining the severity of the isolates lead to the disease outbreak.

FQ-Cu and MV-Cu were significantly effective in reducing the percentage of contamination of healthy seedlings by infected ones before the emergence of the first true leaf.

Nano composites used in the study managed to significantly reduce the percentage of disease incidence at 14 days of planting compared to the untreated control and the Kocide3000+Mancozeb.

MV-Cu and FQ-Cu managed to reduce the area under disease progress curve significantly compared to the untreated control.

**Keywords:** Angular leaf spot, cucurbits, *Pseudomonas syringae*, MLSA, ANI, type III secretion system, phytotoxins, FQ-Cu, MV-Cu, CS-Cu, Kocide<sup>®</sup> 3000.



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