

عنوان مقاله:

Identification of an *Aspergillus* isolate with potential for biocontrol of *Phytophthora palmivora*, causal agent of black pod disease of cocoa

محل انتشار:

Journal of Crop Protection, دوره 10, شماره 2 (سال: 1399)

تعداد صفحات اصل مقاله: 16

نویسندگان:

Joshua Obeng - *Division of Entomology and Plant Pathology, Council for Scientific and Industrial Research, Oil Palm Research Institute, Kade, Ghana*

Richard Tuyee Awuah - *Department of Crop and Soil Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana*

Alexander Wireko-Kena - *Department of Crop and Soil Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana*

Bernard Armoo - *Cocoa Research Institute of Ghana, Akim Tafo, Ghana*

خلاصه مقاله:

The black pod disease of cocoa in Ghana caused by *Phytophthora palmivora* and *P. megakarya* is traditionally managed with fungicides. Because of challenges associated with fungicide use, biological control options, if available, are worth trying. A fungus with proven usefulness in suppressing *P. palmivora* and *P. megakarya* in dual plate cultures and cocoa pods has partly been identified as an *Aspergillus* (designated AI₁). However, its exact identity has been unknown, requiring specific identification by comparing it with known *Aspergillus flavus* strains (designated AI₂, AI₃, AI₄, and AI₅). It was retested against *P. palmivora* to confirm the potency of AI₁. The putative *A. flavus* isolates were also tested for the first time against *P. palmivora*. Morphological features were determined on carrot agar (CA), potato dextrose agar (PDA), and malt extract agar (MEA). Genomic DNAs from the *Aspergillus* isolates were subjected to the ITS region and β -tubulin gene sequencing. All the *Aspergillus* isolates inhibited *P. palmivora* in assay plates by levels ranging from ۸۹.۳۳ to ۹۵.۳۳% (Experiment ۱) and ۴۶.۶۷ to ۶۰.۳۳% (Experiment ۲). Generally, the AI₁ produced culture features similar to those of the putative *Aspergillus flavus* isolates. ITS region sequence analysis grouped all isolates as *A. flavus* and beta-tubulin also grouped AI₁, AI₂, AI₃, and AI₄ as *A. flavus* but differentiated AI₅ as *A. flavus* var. *parvisclerotigenus*. AI₃ recorded the highest inhibition zone and prevented black pod development of inoculated pods as well. The previously unknown *Aspergillus* isolates AI₁ is now conclusively identified as *A. flavus*.

کلمات کلیدی:

cocoa, biocontrol, *Aspergillus*, gene sequencing, *Phytophthora palmivora*

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1811353>



