Journals Home

APS Home

Journals

IS-MPMI Home

My Profile

Help Subscribe Search

Advanced Search

Share

Subscribe





About the cover for October 2014

ISSN: 0191-2917

SEARCH

Enter Keywords

Phytopathology

Plant Disease

○ MPMI

search Advanced Search

Inside the Journal

BACK ISSUES

(Issues before 1997)

First Look

View Most Downloaded Articles

About Plant Disease

Editorial Board

Submit a Manuscript

Author Instructions

Policies/Procedures

Online e-Xtras

= "Open" Access

plant disease

Editor-in-Chief: Mark L. Gleason Published by The American Phytopathological Society

Home > Plant Disease > Table of Contents > Abstract Previous Article | Next Article

October 2014, Volume 98, Number 10 http://dx.doi.org/10.1094/PDIS-06-14-0586-PDN

Disease Notes

First Report of Xanthomonas euvesicatoria Causing Bacterial Spot Disease in Pepper in Northwestern Nigeria

M. O. Jibrin, Department of Crop Protection, Ahmadu Bello University, Zaria, Nigeria; S. Timilsina, N. Potnis and G. V. Minsavage, Plant Pathology Department, University of Florida, Gainesville 32611; K. C. Shenge, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster 44691; A. D. Akpa and M. D. Alegbejo, Department of Crop Protection, Ahmadu Bello University, Zaria; F. Beed, International Institute for Tropical Agriculture, East Africa Regional Hub, Tanzania; G. E. Vallad, Gulf Coast Research and Education Center and Plant Pathology Department, University of Florida, Wiamauma 33598; and J. B. Jones, Plant Pathology Department, University of Florida, Gainesville

Bacterial spot (BS) has been reported as an important disease on pepper in Nigeria (4). Xanthomonas campestris pv. vesicatoria was identified as the causal agent using phenotypic and pathogenicity tests; however, X. campestris pv. vesicatoria is a synonym for two genetically distinct groups that have been elevated to the species X. euvesicatoria and X. vesicatoria (2). Furthermore, the latter two species and X. gardneri cause similar diseases on pepper (2). In order to determine the species associated with BS on pepper, leaves with irregular, dark brown lesions were collected from pepper plants in fields from northwestern Nigeria, and isolations were made on nutrient agar (NA). Yellow, mucoid colonies typical of Xanthomonas were isolated. Six strains isolated from pepper were determined to be nonamylolytic. For race determinations, bacterial suspensions of the pepper strains, derived from 24-h cultures grown on NA at 28°C, were adjusted to 108 CFU/ml and infiltrated into leaves of tomato and pepper differential genotypes (5). The six pepper strains elicited HRs on the tomato differential genotypes. The strains produced a susceptible reaction on all pepper differentials and were designated as pepper race 6 (5). Multilocus sequence analysis (MLSA) using six housekeeping genes (fusA, lacF, gyrB, gltA, gapA, and lepA) was used to further analyze the strains (1) (GenBank Accession Nos. KJ938585 to KJ938587, KJ938592 to KJ938594, KJ938599 to KJ938601, KJ938606 to KJ938608, KJ938633 to KJ938635, and KJ938640 to KJ938642). A partial sequence of hrpB2 was also sequenced since the four Xanthomonas species associated with BS can be differentiated based on sequence divergence (3) (KJ938622 to KJ938627). The housekeeping gene sequences were aligned along with other Xanthomonas sequences imported from the NCBI database using muscle tool from MEGA software, 5.2.2. Maximum likelihood phylogenetic trees constructed for the six housekeeping gene sequences individually and in concatenation revealed that the Nigerian pepper strains were identical to the X. euvesicatoria reference strain 85-10. Although BS is common in Nigeria, to our knowledge, this represents the first report for this pepper pathogen in Nigeria.

Quick Links

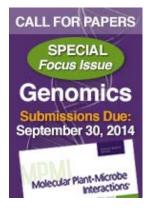
Add to favorites

E-mail to a colleague

Alert me when new articles cite this article

Download to citation manager

Related articles found in APS Journals





References: (1) N. F. Almeida et al. Phytopathology 100:208, 2010. (3) J. B. Jones et al. System Appl. Microbiol. 27:755, 2004. (4) A. Obradovic et al. Eur. J. Plant Pathol. 88:736, 2004. (2) E. U. Opara and F. J. Odibo. J. Mol. Gen. 1:35, 2009. (5) R. E. Stall et al. Ann. Rev. Phytopathol. 47:265, 2009.



Journals Home | APS Home | IS-MPMI Home | Contact Us | Privacy | Copyright The American Phytopathological Society