


 [Journals Home](#)[APSnet](#)[IS-MPMI.net](#)[My Profile](#)[Help](#)[Subscribe](#) [Search](#)[Advanced Search](#)[Share](#) [About the cover for May 2009](#)

ISSN: 0191-2917


SEARCH

- [Advanced Search](#)
- [Phytopathology](#)
- [Plant Disease](#)
- [MPMI](#)
- 

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

Editor-in-Chief: Mark L. Gleason

Published by The American Phytopathological Society

[Home](#) > [Plant Disease](#) > [Table of Contents](#) > Abstract [Quick Links](#)
[Previous Article](#) | [Next Article](#)

May 2009, Volume 93, Number 5

Page 549

<http://dx.doi.org/10.1094/PDIS-93-5-0549B>

Disease Notes

First Report of Bacterial Wilt of Tomato (*Solanum lycopersicum*) Caused by *Ralstonia solanacearum* in Benin

R. Sikirou, Institut National des Recherches Agricoles du Benin/Laboratoire de Défense des Cultures, 01 B.P. 128 Porto-Novo, Benin; F. Beed, International Institute of Tropical Agriculture (IITA), Plot 15 Naguru, Kampala, Uganda; V. Ezin, IITA, BP 08932, Cotonou, Benin; G. Gbèhounou, Institut National des Recherches Agricoles du Benin/Laboratoire de Défense des Cultures, 01 B.P. 128 Porto-Novo, Benin; S. A. Miller, Department of Plant Pathology, The Ohio State University, 1680 Madison Ave. Wooster; and K. Wydra, Institute of Plant Diseases and Plant Protection, Leibniz Universität Hannover, Herrenhäuser Str. 2, 30419 Hannover, Germany

 Open Access.

In June 2004, wilted tomatoes with no foliar yellowing were observed in Ouègbo, Atlantique District, Benin. The cut tomato stems released whitish bacterial ooze. Longitudinal sections of most stems showed brown

vascular discoloration. Twenty symptomatic tomato plants were collected from 10 fields and exported to the Institute of Plant Disease and Plant Protection, Leibniz Universität Hannover, Germany. Bacteria were isolated on triphenyl tetrazolium chloride (TTC) medium (2) and three of the nine bacterial isolates that resembled *Ralstonia solanacearum* (colonies with red center and whitish periphery) and reference strain ToUdk (race 1 biovar 3; N. Thaveechai, Kasetsart University, Bangkok, Thailand) were used for pathogenicity tests. Five 4-week-old tomato plants cv. Tohounvi, grown in individual plastic pots (14 × 16 cm) containing sterilized field soil, were inoculated with each of the four isolates individually by soil drenching with 30 ml of the test cultures at 10⁸ CFU/ml. Control plants were treated with 30 ml of sterile water. All plants were incubated in a glasshouse at 30°C. All plants inoculated with the isolates from Benin wilted 4 days after inoculation with symptoms similar to those observed in the field. Plants inoculated with the reference strain wilted 7 to 11 days after inoculation. Control plants treated with water remained healthy. *R. solanacearum* was recovered from the 20 symptomatic plants on TTC medium. The identity of the strains in comparison with the reference strain was confirmed by PCR with species-specific primers 759/760, which produced a single 281-bp fragment (3). Because similar symptoms were being increasingly reported by farmers across Benin and linked with reduced tomato yields, a disease survey was undertaken by IITA in 2006 and 2007. Wilted tomato plants were found across all agro-ecological zones of Benin (3 to 72% of plants per field). Isolates were recovered from the southeastern districts of Adja-Ouèrè, Sakété, Adjohoun, and Dangbo, the southwestern districts of Klouékanmè and Athiémé, the southern districts of Toffo and Bohicon, the central districts of Dassa and Savè, and the northern districts of Malanville and Karimama. Identification of *R. solanacearum* was confirmed following inoculation of tomato, production of characteristic wilting symptoms, recovery of the pathogen on TTC medium, and positive identification with ELISA kits (Pathoscreen Rs; Agdia Inc., Elkhart, IN). To our knowledge, this is the first report of *R. solanacearum* infecting tomato in Benin. Tomato is the most cultivated vegetable crop in Benin and important to the livelihood of many people in peri-urban and rural areas. Understanding that the cause of the observed crop losses is *R. solanacearum* may lead to implementation of management strategies such as deployment of disease-resistant cultivars or grafting tomatoes onto bacterial wilt-resistant rootstocks (1).

References: (1) P. Aggarwal et al. Indian J. Agric. Sci. 78:379, 2008. (2) A. Kelman. Phytopathology 44:693, 1954. (3) N. Opina et al. Asian Pac. J. Mol. Biol. Biotechnol. 5:19, 1997.

Cited by

Plant Disease Diagnostic Capabilities and Networks
[Sally A. Miller](#), [Fen D. Beed](#), and [Carrie Lapaire Harmon](#)
Annual Review of Phytopathology Sep 2009, Volume 47,
Number 1: 15-38
[CrossRef](#)

- [Journals Home](#)
- [APSnet](#)
- [IS-MPMLnet](#)
- [Contact Us](#)
- [Privacy](#)
- [Copyright The American Phytopathological Society](#)