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DISEASE NOTES

First Report of *Pantoea agglomerans* Causing Rice Leaf Blight in Venezuela

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ABSTRACT

During the dry production seasons between 2002 and 2007, we collected leaf samples from *Oryza sativa* with clear symptoms of severe leaf blight in experimental fields and commercial crops in Guárico and Portuguesa States in Venezuela. On affected plants, disease severity ranged from 20 to 100%. Symptoms first appeared as yellowish or brownish lesions that later turned pale yellow and dry. Lesions eventually became necrotic. We consistently isolated a rod-shaped bacterium from diseased leaf tissues, which produced yellow colonies on nutrient agar. Colonies appearing after 24 h of incubation were transferred and replicated on nutrient agar and yeast extract, dextrose, calcium carbonate (YDC) to obtain pure cultures. All isolated bacteria were Gram-negative, catalase, and gelatinase positive and were capable of reducing nitrate to nitrite, hydrolyzing starch, and producing hydrosulfuric acid. The isolated facultative anaerobe was positive in D3 media (1), growing at 37°C, but was negative to oxidase, urease, indole, and potato soft rot tests. The isolate also produced acid from different carbon sources like L-arabinose, maltose, trehalose, and palatinose. The identity of two isolates (A1 and A2) was assessed by partial sequencing of the 16S rRNA gene (GenBank Accession Nos. KJ650322.1 and KJ650323.1, respectively). A BlastN search of GenBank revealed 100% nt identity with *Pantoea agglomerans* (GenBank Accession No. KC764985.1). Pathogenicity was corroborated by spray inoculating plants with a bacterial suspension, prepared after growing a single colony in nutrient broth to a cell density of 10⁸ CFU/ml (48 h) in saline solution. Prior to inoculation, Gram differentiation 3% KOH rapid test (3) and Congo red staining were both performed again to check for the initial description of the pathogen. Inoculation was done by spraying the suspension of each isolate onto 20 21-day-old plants of cultivar Cimarron. Leaves were punctured before inoculation with sterile needles to facilitate bacterial infection. Control plants were sprayed with sterile distilled water. All plants were incubated for 72 h in a humidified chamber (78% humidity) at 31°C and then observed for 15 days for the appearance of disease symptoms. Inoculated plants developed symptoms similar to those observed in the field. Control plants did not show any symptoms. To show virulence consistency, this process was done twice, fulfilling Koch's postulates. These results indicated that the causative agent of this kind of rice leaf blight disease observed in Venezuela is *P. agglomerans*. A few reports worldwide establish *P. agglomerans* as a rice pathogen (2,4,5). To our knowledge, this is the first report of rice leaf blight caused by this pathogen in Venezuela, although its impact on rice production has yet to be determined.

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Section:

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