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DISEASE NOTES



Confirmation Report of Bacterial Blight Caused by Xanthomonas oryzae pv. oryzae on Rice in Senegal

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Bacterial blight (BB) disease caused by *Xanthomonas oryzae* pv. *oryzae* (*Xoo*) was reported in Senegal by Trinh (1980). However, no strain of the bacteria has been isolated on rice, and no additional information on the disease was reported. To confirm Trinh's observations, we surveyed rice fields in eight different regions of rice production in Senegal between 2014 and 2016. Typical symptoms of BB such as water-soaked areas and yellowish lesions along the leaf margins and tips were observed on rice plants essentially in the Saint Louis region to the north (sites of Ndiaye and Ndioum) and in the southeast in the Kédougou region (Bandafassi site), with of up to 30 to 50% incidence. Symptomatic leaf samples were collected from 103 independent fields from regions of Saint Louis, Matam, Kédougou, Tambacounda, Kolda, Sédhiou, and Ziguinchor, and ultimately the presence of *Xoo* was confirmed in the Saint Louis and Kédougou regions only. Leaf samples were processed for bacterial identification. Round, pale yellow pigmented, and mucoid *Xanthomonas*-like colonies were obtained on

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peptone sucrose agar semi-selective medium 48 h after incubation at 28°C (peptone, 10 g; sucrose, 10 g; Bacto agar, 16 g; distilled water, 1,000 ml; actidione, 50 mg/liter; cephalexin, 40 mg/liter; and kasugamycin, 20 mg/liter). To confirm that the isolates were Xoo, a multiplex PCR developed for the identification of X. oryzae pathovars was used (Lang et al. 2010). Forty-three strains produced two bands corresponding to Xoo. The genome of one of these strains, namely CIX2374, was determined recently in a separate study (GenBank NZ_CP036377.1) and shown to cluster with other African Xoo. In addition, strains CIX2951 and CIX2974 were subjected to gyrB sequencing using the universal primers XgyrB1F and XgyrB1R (Young et al. 2008). The resulting 658-bp sequences (GenBank MN517835 and MN517836) were identical to the corresponding sequence in the BAI3 African reference Xoo strain genome and clustered with African Xoo-specific gyrB sequences. The pathogenicity of strains CIX2374, CIX2951, and CIX2974, isolated from samples collected in Saint Louis and Kédougou, was tested on 1-month-old Oryza sativa cv. Azucena plants. Rice leaves were inoculated by leaf clipping using sterile scissors dipped in the bacterial suspension. Fifteen days after inoculation, plants exhibited typical BB lesions, whereas control plants remained symptomless. The reisolated bacteria from diseased leaves yielded colonies that were confirmed by multiplex PCR as Xoo, thus fulfilling Koch's postulates. All strains are referenced in the collection of the French Institute for Research for Sustainable Development in Montpellier, France, under the same numbers (CIX2374, CIX2951, and CIX2974). This report confirms the presence of Xoo in Senegal and expands our knowledge of this important disease in West Africa. This work will serve as a basis for future rice breeding for BB resistance efforts in the country. Further studies are needed to clarify the spatial distribution and prevalence of BB, because rice cultivation is expanding rapidly in Senegal, contributing to global food security in the Sahelian region.

The author(s) declare no conflict of interest.