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Characterisation of the Pathogenic Population of Bacterial Blight of Rice in West Africa

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Abstract

Bacterial leaf blight (BB), caused by *Xanthomonas oryzae* pv. *oryzae* (Xoo), one of the most important diseases of rice under irrigated cultivation, was reported for the first time in the end 70th, in Mali. Although it had been described in many West African countries, no significant research on this key disease had been conducted at that time in Africa. The use of resistant varieties is recommended as the most effective approach to control BB. In Asia 30 resistant genes have been identified but their reaction against African isolates is not known. Therefore, using near isogenic lines developed by IRRI, the virulence of Xoo populations was evaluated both in natural infected fields and in standard pathotyping condition in order to provide information that can be used in breeding programs to introduce effective resistance in cultivars to be released in specific regions. In Niger, Xa1, X4, Xa7, xa13 and Xa21 were found efficient against a large part of the bacterial population meaning that the corresponding non functional avirulence genes are absent or rare in Xoo population in Niger. In Mali, xa5, Xa7, Xa14 and Xa21 were efficient in four experimental sites. The susceptibility of the Gigante is a matter of concern as this variety is used as donor for resistance to Rice Yellow Mottle Virus (RYMV), another important rice disease in Africa. The resistance of IR24 used as susceptible recurrent parent to build the NILs appeared surprisingly resistant indicating probably a difference between Asian strains and African strains at pathological level. The information generated should be used by breeder not only to develop resistant varieties to Xoo but also to avoid an eventual susceptibility to Xoo of RYMV resistant progenies involving Gigante as parent.

Keywords: Bacterial Blight, *Oryza sativa*, resistance, rice, virulence, *Xanthomonas oryzae* pv *oryzae*