Abstract of Poster Presentation

Quorum sensing genes *rpfF* and *xanB2* are not essential for albicidin production nor sugarcane colonization by *Xanthomonas albilineans*

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Xanthomonas albilineans (Xa) produces albicidin, a unique and specific toxin that causes foliar symptoms of sugarcane leaf scald disease. In *X. campestris* pv. *campestris*, a cluster of *rpf* (for regulation of pathogenicity factors) genes and *xanB2* are involved in control of various cellular processes. *rpfF* and *xanB2* encode DSF (diffusible signal factor) and DF (diffusible factor), respectively, which are two quorum sensing signalling molecules. Both quorum sensing systems appear to be used by Xa, since mutation of *rpfF* in Florida strain XaFL07-1 resulted in reduced protease production, and mutation of *xanB2* resulted in loss of xanthomonadin (yellow pigment) production. Mutations of *rpfF* and *xanB2* were verified by PCR analyses. Mutations of *rpfF* and complementation *in trans* were also verified by use of an *X. campestris* DSF reporter strain. Sugarcane cultivar CP80-1743, moderately susceptible to leaf scald, exhibited pencil line symptoms indicative of albicidin production on emerging leaves and colonization of leaf vessels after inoculation of stalks by the decapitation method with all mutants, including separate deletion mutations of *rpfG* and *rpfC* (encoding two sensor components of the DSF system). Preliminary experiments indicated that several *rpfF* and *xanB2* mutants colonized sugarcane stalks as efficiently, both spatially and in intensity, as wild type Xa. Additional inoculation experiments are in progress to assess disease severity caused by *rpf* mutants, including deletion of the entire *rpfGCF* region. However, our preliminary data showed that neither DSF nor DF is essential for albicidin production or sugarcane colonization by Xa. Therefore, albicidin production and sugarcane colonization by Xa may not be controlled by quorum sensing or may involve another system.