# Phylogenetic identification of *Xanthomonas* spp. causing chlorotic streaks in sugarcane

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## Abstract

Mexico occupies the fifth place in the production of sugarcane (*Saccharum* spp. hybrids) in the world; this industrial crop is planted in 15 of the 32 states of the Mexican Republic. Veracruz State is currently the largest sugar producer in the country with a production of 18,628,734 t in 2010. However, the sugarcane crop has been affected by different plant pathogenic bacteria, which cause white and yellowish streaks in leaves besides lateral proliferation. In order to identify the causal agents of those symptoms, a survey was conducted in experimental and commercial plots in Veracruz and Tabasco States located in southeast Mexico. Small portions of tissue from areas where healthy and diseased tissues converged were disinfested with sodium hypochlorite and rinsed with sterile distilled water to eliminate epiphytic microorganisms. Later, they were placed on Petri plates containing King B, YDC, and selective media. After 72 h white-cream, pale-yellow, and yellow mucilaginous and non-mucilaginous convex colonies were observed and selected for phylogenetic identification and pathogenicity test. A total of 130 isolates were subject to DNA extraction procedures. Primers 8F/1492R were used to amplify a partial sequence of 16S rDNA and PCR products were sequenced with U514F/800R. Results indicated the presence of two phytopathogenic bacteria, *Xanthomonas albilineans* in cvs. CP 72-2086, Mex 79-431, and Mex 68-p23 in Tabasco and Veracruz States, and *X. axonopodis* pv. vasculorum in cv. ITV 92-1424 only in Veracruz State. Pathogenicity tests were confirmed by injecting $10^8$ CFU $mL^{-1}$ of inoculum in stem from 45 days old plantlets in the greenhouse. Early symptoms of white and yellowish stripes were observed 10 days post-inoculation and negative control did not develop symptoms. In addition, other bacteria associated to these symptoms were identified as *Stenotrophomonas maltophilia*, *Pantoea stewartti* subsp. *indologenes*, and *Pantoea ananatis*. This last result should be considered by the sugarcane breeder to establish the role of these bacteria in chlorotic streaks expression.