

## Detection of *Xanthomonas phaseoli* pv *phaseoli* on Cuban common bean cultivars

### Detección de *Xanthomonas phaseoli* pv. *phaseoli* en cultivares cubanos de frijol común



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*Xanthomonas* is a genus of Gammaproteobacteria that includes numerous phytopathogenic species, each characterized by a narrow host range. However, as a whole, the members of the genus are able to infect a broad range of plants, where common bean (*Phaseolus vulgaris* L.) is within the affected plant species. *Xanthomonas* spp., such as *Xanthomonas phaseoli* pv *phaseoli* (Smith) Vauterin and *Xanthomonas citri* subsp. *fuscans* (Burkholder) Starr & Burkholder, can cause the bean common bacterial blight (CBB), which is a devastating seed-borne disease widely spread in common beans. The disease can cause yield losses ranging between 10 and 40 %, depending on bean cultivar susceptibility and environmental conditions. In Cuba, the leaves were affected in a range between 15 and 48 % up to 80 % in susceptible bean lines. This disease has also been reported on some Cuban bean cultivars such as 'CC-25-9', 'Bolita 42', 'Bat 304', 'Guamá 23', 'Tazumal', 'Velasco largo', 'Güira 89', and others.

A survey was conducted at the experimental areas of the Institute of Grains for the production of common beans in the locality of Bauta, Artemisa province, in February 2018. Fourteen samples were collected from symptomatic plants of the bean cultivars 'Bolita 42', 'Guamá 23', 'Tazumal', 'Velasco largo', 'Güira 89', 'Milagro Villareño', and 'Cu156'. The samples were

processed to obtain pure cultures of the pathogens by inoculating the culture media YDCA and XCP1. The DNA of the isolates was extracted and analyzed by conventional PCR using the specific primers p7X4c and p7X4e or Xf1 and Xf2, with which is possible to detect *Xanthomonas phaseoli* pv *phaseoli* or *Xanthomonas citri* subsp. *fuscans*, respectively, in plant materials. Eleven samples produced convex, mucoid yellow colonies on YDCA and bright yellow colonies on XCP1. No dark pigment was produced on any of the culture media. With the primers p7X4c and p7X4e, all these colonies amplified a fragment of around 800bp, the size reported for this *Xanthomonas* species and pathovar. None of the colony amplified any fragment with the primers Xf1 and Xf2.

As far as it is known, this report on the identification and detection of *Xanthomonas phaseoli* pv *phaseoli* in the Cuban bean cultivars 'Milagro Villareño' and 'Cu156' is the first for Cuba. These results are an evidence of the occurrence of this pathogen on these Cuban bean cultivars in areas of the Institute of Grains. Furthermore, they are very important to draw an appropriate strategy for the management of this crop to obtain bean genotypes resistant to this disease, as well as to know other important elements about the etiology of this disease.

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