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Selecting grain legume genotypes with resistance to ashy stem blight by the cut-stem method

Ashy Stem Blight (ASB) caused by *Macrophomina phaseolina* (Tassi) Goidanich (*Mp*) is an important disease in legumes in the tropics. Resistance has been identified within *Cajanus, Phaseolus* and *Vigna* species. Our objectives were to: Evaluate the response of the legumes germplasm conserved at University of Puerto Rico and identify resistant genotypes. 20 common beans were planted in a greenhouse at Isabela; 3 cowpeas, 4 common beans and 42 pigeon peas were planted at Lajas in 2016-2017. PRI16 *Mp* isolate was inoculated 1 or 3 times at the fourth-internode and lateral branches by the cut-stem method. Evaluation of ASB severity was conducted at 15 and 42 days in Lajas and Isabela, respectively. BAT 477, Othello and Verano common beans were susceptible (mean scores >7) in both locations. I-58-2, ICP 86012 and ICP 98030 pigeon peas were susceptible in Lajas. Partial resistance (scores 4-6) was noted in pigeon pea genotypes: Cortada, Guerrero, ICP 6899 and Pinto Berrocales and Gorda cowpea in Lajas. Similarly, A 195 and Badillo common beans were intermediate in Isabela while PC 50 had partial resistance in both locations. I-8-3-4 and ICP 6915 pigeon peas; PI 339623 (Tanzania) and PI 293570 (Speckled Purplehull) cowpeas were resistant to ASB in Lajas (scores≤3). Thus, the cut-stem method was a reliable technique to select genotypes with ASB resistance and should be used in combination with field evaluations. Furthermore, multiple inoculations with the same or different Mp isolates are recommended to identify genotypes with specific and broad-spectrum resistance.

Biography

Diego M Viteri is an Assistant Professor in the Department of Agro-Environmental Sciences at University of Puerto Rico. He has more than five years of experience in genetics and breeding for resistance to biotic and abiotic stresses in common bean. Also, he has experience in the development of screening methods to identify crop genotypes with resistance or tolerance to diseases in the greenhouse. He is the author/co-author of more than 20 publications in North American and European journals.

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