

Dominant and monogenic control of *Fusarium oxysporum* f. sp. *lactucae* race 1 resistance in lettuce
(Herança da resistência à murcha causada por *Fusarium oxysporum* f. sp. *lactucae* raça 1 em alface crespa)

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Fusarium oxysporum f. sp. *lactucae* (FOLac) is responsible for significant economic losses across major lettuce-producing regions around the world. Thus far, only FOLac race 1 isolates have been reported associated with Fusarium wilt outbreaks in Brazil. The most sustainable strategy for disease control is the pyramidization of race-specific resistance factors in lettuce cultivars. The loose-leafy cultivar 'Vanda' was found as one of the most promising sources of resistance to FOLac race 1. The genetic basis of this resistance was determined by analyzing the reaction to this pathogen of segregating populations derived from the cross 'Gisele' (susceptible) 'Vanda' (pollen donor). A single molecular marker-genotyped F₁ hybrid plant was selfed and individual plants of a segregating F₂ population as well as 63 families F₂:F₃ were inoculated with a FOLac race 1 isolate by using the root-dipping method (10⁶conidia/ml). Our results confirmed the high levels of resistance of 'Vanda' even under very harsh experimental conditions. Overall, the reaction of the F₁ plants and the segregating patterns of the F₂ population (n = 82) and of the F₂:F₃ families (n = 838plants) fit a single dominant gene/locus model. However, the phenotypic expression of resistance might suffer effects of additional genetic factor(s) (e.g., locus dosage, minor modifying genes, and incomplete penetrance). Notwithstanding, the high levels of FOLac race 1 resistance and its relatively simple genetic control makes 'Vanda' a major germplasm source for lettuce-breeding programs aiming to incorporate this trait in a wide array of elite lines from distinct varietal groups

Palavras-chave: genetic control; Fusarium wilt; Inheritance

Apoio: Núcleo Interdisciplinar de Pesquisa-NIP_Unidesc: Centro Universitário de Desenvolvimento do Centro-Oeste.