

Screening of potato germplasms for resistance against potato apical leaf curl disease under natural epiphytotic conditions

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ABSTRACT : Tomato Leaf Curl New Delhi Virus (ToLCNDV) infection vectored by whitefly (*Bemisia tabaci*) causes Potato Apical Leaf Curl Disease (PALCD) that resulted in serious economic losses in potato production especially in northern India, and the identification of new domestic varieties with high levels of resistance against PALCD is required. In this study, 167 accessions of *Solanum tuberosum* were evaluated for their resistance to PALCD during *rabi* season of 2012-13 in Hisar, Haryana, which is the hotspot for this disease. Based on the disease reaction, 167 genotypes were categorized in to resistant (97), moderately resistant (21), susceptible (14) and highly susceptible (35) categories. During *rabi* season of 2013-14, twenty two genotypes (13 resistant, 4 moderately resistant and 5 susceptible) were selected for detailed study and planted in RBD with three replications. The per cent PALCD incidence had significant and positive association with whitefly population, number of stomata, leaf area, and total sugars, while it had significantly negative correlation with number of trichomes, phenol content and ortho-dihydroxy phenols. Whitefly population was high in susceptible genotypes like Kufri Khyati and Kufri Pukhraj. Phenols and ortho-dihydroxy phenols were maximum in the disease free genotype Kufri Bahar and low in all the susceptible genotypes. Kufri Bahar and AICRP-PH-2 were completely free from PALCD whereas, Kufri Khyati was highly susceptible.

Key Words : Screening, potato germplasms, Potato Apical Leaf Curl Disease (PALCD).