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Variability among *Ralstonia solanacearum* Strains from Different Agro-Ecological Zones of Pakistan

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Abstract

Bacterial wilt incited by the bacterium *Ralstonia solanacearum* is a serious threat to economically important solanaceous crops in Pakistan and the bacterium has shown great morphological, pathogenic and genetic diversity in different regions of the world.In Pakistan Chili is cultivated on an area of 65 thousand hectares with major contribution by Sindh province. The area under chili cultivation in the province Sindh is about 52.8, Punjab 5.1, Baluchistan 5.2 and Khyber Pakhtoonkhwa 0.5 thousand hectares, contributing 137, 7.4, 5.0 and 0.6 thousand tons production respectively. As such information is lacking in Pakistan, therefore, in the present studies variations in hypersensitivity response, growth and virulence were observed among 114 strains of *Ralstonia solanacearum* collected from eight agro ecological zones of Pakistan. Of all the 114 isolates of *R. solanacearum*, 88 showed positive HR and mucoid growth while 26 isolates gave negative HR with non mucoid growth. Out of 114 strains of *R. solanacearum* consisting of biovar-3 and -4, 22.8 % were found avirulent, 25 % weakly virulent, 29.3 % virulent and the remaining 21.9 % were highly virulent. Among 92 *R. solanacearum* biovar-3 strains, 21.7 % were identified as avirulent, 25 % weakly virulent, 34.4 % virulent and 22.8 % were highly virulent in the eight agro ecological zones of the country. Similarly, out of 22 *R. solanacearum* biovar-4 strains, 27.3 % each were detected as avirulent, weakly virulent and virulent while 18.2 % strains were found highly virulent. Relationship was also found between growth and virulence among the *R. solanacearum* strains of the isolates. The strains having non-mucoid growth have been found avirulent while those with mucoid growth were weakly virulent to highly virulent. Similarly, strains showing positive HR were virulent while those with negative HR were found as avirulent.

Keywords: Pakistan, *Ralstonia solanacearum*, Variavility

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