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Molecular mapping of adult plant stripe rust resistance in durum wheat

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Durum wheat (*Triticum turgidum* L. ssp. durum) is an important crop for making pasta and semolina. Stripe rust, caused by *Puccinia striiformis* f. sp. *tritici*, is an important disease of durum wheat globally. Breeding for stripe rust resistance is a major objective among durum improvement programs and it is underpinned by the availability of diverse sources of resistance. This study was planned to understand genetic basis of stripe rust resistance carried by a durum wheat landrace AUS26579 from Portugal. AUS26579 was susceptible in the seedling stage and exhibited high level of adult plant stripe rust resistance under field conditions. AUS26579 was crossed with a susceptible landrace Bansi and a recombinant inbred line (RIL) population (101 lines) was developed. The AUS26579/Bansi RIL population was screened under field conditions to assess variation in stripe rust response. Chi-squared analysis of phenotypic data supported di-genic segregation for stripe rust resistance. Equal amounts of DNA from 10 resistant and 10 susceptible RILs were pooled and bulked segregant analysis (BSA) was performed using the iSelect 90K Infinium SNP assay. BSA results showed the involvement of chromosomes 3B and 6B in controlling stripe rust resistance. Kompetitive Allele Specific Primers (KASP) were designed for the linked SNP loci (six for 3B and 26 for 6B) for detailed mapping of resistance carrying genomic regions in chromosomes 3B and 6B and characterization of these putatively new loci.

Biography

Naeela Qureshi is pursuing her PhD at the University of Sydney, Plant Breeding Institute, Cobbitty, Australia. Her project focuses on "Identification and molecular mapping of rust resistance genes in common and durum wheat genotypes". She presented her research results at the Plant and Animal Genome (PAG) conference, San Diego, USA and the 2nd International Academic Conference for Graduate Students, Nanjing, China in 2015. She has worked as a Plant Pathologist in different research institutes in Pakistan and was awarded Dr. Norman E Borlaug International Agricultural Science & Technology Fellowship by United States Department of Agriculture (USDA) in 2012. She also received the Jeanie Borlaug Laube Women in Triticeae (WIT) Award in 2014.

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