

## Genetic diversity and presence of drebgene in watermelon cultivars and wild forms of watermelon based on molecular markers

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Watermelon (*Citrulluslanatus*) is commonly grown in traditional agrosystems throughout the drought-prone Saudi Arabia. There has been little work on investigating the relationships between wild and cultivated forms, and to study amount and partitioning of genetic variation, to allow for better conservation strategies. Previous studies have reported relatively low levels of genetic diversity in cultivated watermelon but these have been based mainly on US plant introductions and modern watermelon cultivars linked to breeding programmes for disease resistance. The genetic relationships among sex from different countries of origin and with different horticultural characteristics and one related wild-type specie were assessed using inter-simple sequence repeats (ISSR) markers. Also, the presence of the resistance stress gene (DREB) as a marker of drought tolerance in watermelon cultivars and wild-type specie was investigated. The cluster analysis results demonstrated high genetic diversity among commercial cultivars and low genetic diversity between wild species and commercial cultivars. Dendrograms produced two major clusters; one with the all watermelon cultivars and the other with the wild-type specie. The low level of marker polymorphism among the adapted cultivars implies that a severe bottleneck in genetic diversity existed in watermelon during the initial breeding practices. Specific PCR assays using AP2 primers (designed on the basis of the AP2/EREBP sequence of gene DREB) represent a sensitive tool for screening watermelon genotypes for the DREB gene. The DREB gene was present only in wild-type specie. The amplifying DREB gene could be valuable in watermelon breeding programs for selection of desirable alleles under drought stress.

### Biography

Abdullah Soliman Alsohim is Assistance Professor at the Department of Plant Production & protection, Faculty of Agriculture & Veterinary Medicine, Al-Qassim University. He has obtained his Ph.D. from University of Reading in the UK. His main interest is Characterization of Bacterial Genes Involved In motility, Plant Colonization and Plant Growth Promotion. He participated in an international scientific conferences dealing with Molecular Plant-microbe Interaction and biotechnology.

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