

Drought Tolerance & Associated DNA markers in *Fragaria* sp.

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Abstract

Adaptive mechanisms of drought-tolerant plants are mainly determined by genetic and metabolism characteristics. Responses to drought in plants are extremely different according to their genetic background; inter- and intra-species variation in drought tolerance is described. In present study, to evaluate the degree of drought tolerance in *Fragaria* genotypes, a standard method for measurement of dehydration tolerance was established, so, a short-term water deficit experiment performed and determined leaf relative water content (RWC) and leaf water losing rate (WLR) as a quick screening method for monitoring of *Fragaria* genotypes in response to dehydration. The *Fragaria* genotypes were characterized in their response to drought stress by measurement of two eco-physiological parameters associated to the leaf water status (leaf WLR and RWC) and DNA fingerprints was performed for selected *Fragaria* genotypes using AFLP and candidate gene-EST markers. Lastly, the correlation between specific DNA markers and leaf WLR and RWC and the possibility of using association mapping in a small set of *Fragaria* accessions to create a set of correlated markers to the physiological traits which can be involved in drought tolerance in *Fragaria* were tested.

Key words: Strawberry, *Fragaria* sp., Drought stress, DNA markers, Genetic control, Marker Assisted Selection (MAS)