

**DISCOVERY OF GENES CORRESPONDING TO DROUGHT TOLERANCE IN  
*FESTUCA MAIREI***

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Drought stress is one of the major environmental constraints on turfgrass. Turfgrass researchers have invested significant effort into developing and evaluating drought resistance in turfgrass and studying physiological mechanisms underlying drought tolerance. However, progress in breeding turfgrass for drought resistance has been very slow, primarily because of the genetic complexity of drought stress responses and lack of understanding major genetic components underlying the drought tolerance of plants. Plant response to drought stress is manifested by various changes in morphological, physiological and metabolic processes and finally reflected at the molecular level. Investigating the major molecular characteristics associated with drought tolerance would help to identify key traits and facilitate breeding for drought tolerance turfgrass cultivars.

In this study, we identified 179 gene fragments corresponding to drought tolerance from *Festuca mairei*, which was collected from Morocco and adapted to hot dry summers. These fragments were differentially expressed (up-regulated, down-regulated, transient expressed, and up-then-down-regulated) during the drought stress of *Festuca mairei*. The fragments can be used to target the potential function of the genes involved in drought tolerance response by gene sequencing. Genetic markers can be developed from the gene sequences to assist drought tolerant line selection and speed up the breeding program.