عنوان مقاله:

Root Traits and Transpiration Efficiency in Fenugreek Ecotypes Grown under Different Water Treatments

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خلاصه مقاله:

Fifteen endemic ecotypes of the fenugreek were evaluated under well-watered and water deficit stressed conditions in the lysimetric system. Results of analysis of variance revealed that there was significant genotypic diversity for all of the traits, except root branch number. Also, ecotype × water treatment interaction was significant for all traits, except days to ripening, canopy temperature, and grain weight. Based on structural equation modeling, predictors in the causal diagram could explain ۵۹%, ۲۹%, ۶۵%, and ۵۱% of the total variation of dependent traits consisting root length, stem diameter, shoot dry weight, and percent assimilate partitioned to grain, respectively. These dependent traits had high broad sense heritability and explained ۱۰۰% variation of grain weight. Transpiration efficiency had a positive effect on grain weight through stem diameter, root length, shoot dry weight, and percent assimilate partitioned to grain. Results of membership function value of drought tolerance index and heat map clustering revealed that Jahrom ecotype was a highly drought susceptible ecotype, and Yazd and India were drought susceptible ecotypes. Also, Tiranchi and Shiraz were identified as drought tolerant ecotypes. Overall, under water stress conditions, the drought tolerant ecotypes had deeper roots than the other ones. Therefore, these ecotypes might be considered as donor parents in fenugreek breeding programs.

کلمات کلیدی:

Assimilate partitioning, Drought stress, Drought tolerance, Structural equation modeling.,
تخصیص اسیمیلات, تنش خشکی, شنبلیله, مدلسازی معادلات ساختاری