

Effect of Temperature Change on Stomatal Conductance and Chlorophyll Content of Wheat

H. Roshanfekar^{1*}, M. Nabipour², F. Moradi³, and M. Meskarbasheh⁴

1. **Corresponding Author:** Assistant Professor and former Ph.D. Student of Department of Agronomy, Shahid Chamran University, Ahvaz, Iran (hroshan 2001@ yahoo.com)
2. Associate Professor of Department of Agronomy, Shahid Chamran University, Ahvaz, Iran
3. Member of academic board of Agricultural Biotechnology Research Institute, Karadj, Iran
4. Associate Professor of Department of Agronomy, Shahid Chamran University, Ahvaz, Iran

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Abstract

Stomata have a sensitive role in plant physiology aspect investigation, specially under stress conditions. This experiment was carried out in Ahvaz Shahid Chamran University Research Field in 2005 and 2006 under randomized complete block design with 4 replications. The main plots included three planting date (6 November, 26 November and 16 December) and the subplot were three wheat cultivar (Fong, Chamran and Star). The results showed that the deterrence of the average of flag leaf water potential under planting date treatment was significant (1% level), but flag leaf water potential under different cultivars and the interaction between planting date and cultivars was not significant. RWC (relative water content) was different during grain filling and in four sampling in difference planting date and in cultivars for many sampling observed significant difference but the difference was not significant in cultivars interaction and planting date. Stomata conductance in different grain filling stages in planting date showed significant difference. Also under cultivars, there was a significant difference (1% level) but their interaction was not significant. The most stomata resistance was in third planting date and mean comparison of this character in cultivars showed that near the end of grain filling. The highest and lowest stomata conductance was in Fong and Chamran cultivars, 0.93 and 0.67 cm/s respectively. Planting date interaction and cultivar showed that the first sampling exception, in other grain filling period SPAD number influenced by them and in fourth sampling (28 days after flowering) the first and third planting date allocated 41.34 SPAD number to themselves respectively. Grain filling period coincident with heat stress in near the end of season, induced that effective parameters in yield (ψ_p , RWC, g_s and chlorophyll density) located in undesirable conditions. Changing the planting date (late planting date) which caused coincident grain filling to more heat stress and made the severe effective on grain weight compare to biomass as effective of planting date on grain (1% level) had significant different and maximum seed single dry weight was 45.16 and 36.39 mgr in the first and the third planting date respectively. Also, early Fong cultivar with better use from environmental condition got high yield compared to other two cultivars.

Keywords: *Wheat, Stomata Conductance, Chlorophyll Density, Leaf Water Potential and Relative Water Content.*