



Effect of foliar applied glycinebetaine on growth and physiology of wheat (*Triticum aestivum* L.)

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Abstract

Drought is the major limiting factor for healthy crop growth. This study was conducted to find out the response of wheat (*Triticum aestivum* L.) cultivars (Lasani-2008, Auqab-2000) to exogenous application of 100 mM glycinebetaine at different growth stages, Zadoks GS 22, GS 60 and GS 73, representing tillering, flower initiation and grain filling stages, respectively under water deficit condition, at the Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad to find out the best glycinebetaine application stage for mitigating the negative effect of drought stress on wheat plants. The experiment was laid out in completely randomized design (CRD) with factorial arrangement. Data regarding various agronomic traits (plant height, spike length, number of spikelets per spike, number of grains per spike, 1000-grain weight and grain yield per plant) and physiological parameters (water potential, osmotic potential and turgor potential) of crop were recorded using standard procedures. The data of both years so collected were pooled and analyzed statistically by using the Fisher's analysis of variance technique and LSD at 5% probability was used to compare the differences among treatments' means. Drought stress at all three critical growth stages adversely affected all the growth yield and physiological components of wheat plant. The exogenous application of GB at all three critical growth stages improved the drought tolerance of plants and improved the growth, yield and physiological performance of wheat, however, grain filling stage was found more responsive.