

**PHYSIOLOGIC AND BIOCHEMICAL RESPONSES OF WHEAT (*Triticum aestivum* L.) SUBMITTED TO WATER-DEFICIT STRESS IN DIFFERENT PHENOLOGIC STAGES OF DEVELOPMENT**

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Plants submitted to water deficit accumulate proline in the cells. Proline function has been proposed as an osmoprotector and scavenger of reactive oxygen species (ROS). This work aims to study the effects of drought on each phenological stage of wheat (tillering, booting, heading, flowering and grain filling) using stress parameters as RWC (relative water content), membrane stability index (MSI), malondialdehyde levels (MDA) and proline content (PRO). The commercial elite cultivar *Triticum aestivum* cv CD 200126 were submitted to eight days of water-deficit stress on each stage and were compared to no-stressed plants. No wheat plant endured more than 8 days exposed to the stress applied and the perception of stress by plants were higher at the final stages of growth accomplished the leaf mass reduction. All parameter measured begin to be altered from booting, where data were similar to control plants. MSI reduced progressively until remain 19% in grain filling. RWC reduced as well as MSI, however, the reduction were higher. The MDA increased as well as PRO levels, conversely MDA reach highest values in both flowering and grain filling stages, while highest PRO value was in heading. The 100-seed weight of recovery plant from each stressed stages showed no significant reduction in tillering. However, from booting a significant reduction was observed until reach 33% at grain filling. These results were helpful to determine the injuries done by drought in wheat and the phenological stage which should be tested to obtain reliable results in water-deficit studies.

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Key Words: Wheat, drought, proline.