ABSTRACT: Boron (B) toxicity is a considerable mineral nutritional problem for crop production in arid and semi-arid regions worldwide. The effect of mannitol (M) in wheat seedlings that are tolerant and sensitive to excessive B was studied to reduce B toxicity symptoms. Plants were grown in a peat with different concentrations of boric acid (0, 30, 45, 60 mg kg⁻¹) and treated additionally with M (0, 1, 5, 10 g kg⁻¹). Seedlings grown for 8 weeks were harvested for root length, shoot length, and dry-weight measurements and analyzed for B content of leaves. Compared with control groups (no boric acid treatment), B toxicity caused reductions in root length, shoot length, and dry weight of both wheat cultivars. Significant increases on growth parameters were observed under B treatments, the greatest with 1 g kg⁻¹ M application in a tolerant bread cultivar. On the other hand, 10 g kg⁻¹ M application under 60 mg kg⁻¹ B treatment gave also good results on root length in a sensitive durum cultivar. Significant decreases in leaf B content were observed under B treatments with all M applications in both wheat cultivars, the greatest with 5 g kg⁻¹ M application. The results suggest that M applications may have a possible role in overcoming in B toxicity in wheat grown in the field.

KEYWORDS: Boron toxicity, bread wheat, durum wheat, ICP-OES, mannitol