

Synchronization of Boron application methods and rates is environmentally friendly approach to improve quality attributes of *Mangifera indica* L. on sustainable basis

ABSTRACT

Micronutrient deficiency in the soil is one of the major causes of mango fruit and yield's poor quality. Besides, the consumption of such a diet also causes a deficiency of micronutrients in humans. Boron deficiency adversely affects the flowering and pollen tube formation, thus decreasing mango yield and quality attributes. Soil and foliar application of B are considered a productive method to alleviate boron deficiency. A field experiment was conducted to explore the Boron most suitable method and application rate in mango under the current climatic scenario. There were nine treatments applied in three replications. The results showed that application of T8 = RD + Borax (75 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) and T9 = RD + Borax (150 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) significantly enhanced the nitrogen, potassium, proteins, ash, fats, fiber, and total soluble solids in mango as compared to the control. A significant decrease in sodium, total phenolics contents, antioxidant activity, and acidity as citric acid also validated the effective functioning of T8 = RD + Borax (75 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) and T9 = RD + Borax (150 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) as compared to control. In conclusion, T8 = RD + Borax (75 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) and T9 = RD + Borax (150 g plant⁻¹ as a basal application) + H₃ BO₃ (0.8% as a foliar spray) is a potent strategy to improve the quality attributes of mango under the changing climatic situation.

Keyword: Acidity; Fats; Micronutrients; Macronutrients; Protein contents; Phenolics contents; Total soluble solids