

Biofortification with selenium increases bioactive compounds and antioxidant capacity in tomato fruits

SUMMARY

The objective of biofortification is the human consumption of foods of high nutritional quality, and rich in micronutrients. Selenium (Se) is an essential micronutrient in human nutrition, and its essentiality has not been demonstrated in plants. However, its application in crops and subsequent consumption can mitigate the deficiency of this micronutrient in the diet of human populations. This work analyzes the capacity of sodium selenite (Na_2SeO_3) to increase yield, the biosynthesis of bioactive compounds, and their accumulation in tomato fruits. For this, five treatments were applied via nutrient solution: 0, 2, 4, 6, and 8 mg L⁻¹. At harvest, the nutraceutical quality and the accumulation of Se in fruits were quantified, as well as the productivity of the tomato plant. Biofortification was positively affected by the biosynthesis of phytochemical compounds and their concentration in the fruit, although tomato yield decreased. The incorporation of Se in the nutrient solution is an alternative to increase both the biosynthesis of phytochemical compounds and the concentration of this element in tomato fruits with the possibility of improving public health through its consumption.

Index words: nutraceutical quality; productivity; *Solanum Lycopersicon*