

ABSTRACT

Post-harvest losses account for 25-30% of horticultural produce in Kenya. The actual post-harvest loss for tomato is about 20-50%. This can even be higher depending on the season and level of production. This study investigated the role of chitosan and silicon on growth, quality and shelf life of tomato fruits grown under greenhouse conditions. The experiments were laid out using a completely randomized design (CRD) involving four treatments of chitosan, silicon, chitosan silicon complex and a control with three replications. The experiments were carried out in a greenhouse and laboratories at Jomo Kenyatta University of Agriculture and Technology (JKUAT) for two seasons. An elite hybrid variety, i.e., Bravo was grown with proper routine practices maintained. Data on germination rate, days to flowering, days to ripening, yield, lycopene content and days to deterioration of the harvested fruits were taken. The collected data were subjected to ANOVA for parameterization and means separated using protected LSD0.05. The study showed that tomato plants grown using chitosan, silicon and chitosan-silicon complex had significantly ($P < 0.05$) better results in terms of germination rate, days to flowering, yield and post-harvest shelf of the fruits. Also, the treated plants had significantly higher chlorophyll and lycopene contents than control. Treatments with chitosan-silicon complex had the best performance in most aspects. The study recommends consideration of chitosan-silicon complex as an important input during tomato production for increased yield, quality and post-harvest shelf life.