Title Impact of preharvest spray of *Trifloxystrobin* in combination with *Tebuconazole* on postharvest quality of tomato fruits

Author P. Jeyakumar, R. Nagajothi, G. Velu, C. Vijayalakshmi

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Abstract

Trifloxystrobin, a strobilurin class fungicide is widely used for disease management in crops such as rice, wheat, tomato, soybean and grapes. The compound has also been found to influence physiological alterations in plants resulting in longer retention of green leaf tissue, inhibition of ethylene biosynthesis, increase in endogenous cytokinins and auxins, better N assimilation, increase in CO_2 assimilation, increase in water use efficiency and harvest index. *Trifloxystrobin* alone or in combination with *Tebuconazole* imparts biotic and abiotic stress tolerance in few crops. However, there are no studies on the influence of *Trifloxystrobin* on postharvest quality of any commercial fruit or vegetable. Hence, an attempt was made to asses the impact of *Nativo* 75 *WG (Trifloxystrobin+ Tebuconazole),* a proprietary product of Bayer CropScience, in tomato hybrid *Vijaya.* There were six treatments in the experiment consisting of foliar spray of *Nativo* at four different concentrations i.e., 200, 300, 400, 600g /ha, *Mancozeb* at a single concentration of 1000gfha and unsprayed control. The tomato fruits were observed for weight loss at three days interval and quality characters were assessed on twelfth day after storage at ambient temperature (32°C). A gradual decline in fruit weight over the time was observed irrespective of the treatments. The minimal loss in weight was observed in fruits harvested from plants treated with *Mancozeb* @ 1000g/ha and *Nativo* @ 300 g/ha by recording 27.96 and 29.05 per cent. The unsprayed control registered the maximum loss of 39.01 per cent after 12 days of storage. The plants treated with *Nativo* @400gfha had higher fruit moisture content (86.6 %), fruit firmness (1.39 kg) and total soluble solids (7.8 °brix). The same treatment also had lower respiratory rate of 17.8 mg CO_2 kg-1h-! favouring extended shelf life. The measurements on chromacity indicated that *Mancozeb* had positive influence on colour (redness) ofthe fruit by recording the highest 'a' value of24.2. *Nativo* treatments also resulted in 'a' value of>20 while unsprayed control registered only 18.1. The quality characters such as pulp pH, Iycopene, ascorbic acid and titrable acidity were found not influenced by any of the treatments.