

2nd International Conference on Agricultural & Horticultural Sciences

Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

Trifloxystrobin induced changes in the postharvest behaviour of Tomato fruits

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A strobilurin class fungicide, *Trifloxystrobin* has been found to have influence on postharvest quality characters in tomato fruits. The compound is widely used for disease management in many cereals, fruit and vegetable crops. Physiological alterations in plants resulting in longer retention of green leaf tissue, inhibition of ethylene biosynthesis, increase in cytokinins and auxins, better N assimilation, increase in CO₂ assimilation, water use efficiency and harvest index have been reported in many crops. *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 experiment was done during 2013 at Department of Crop Physiology, TNAU, Coimbatore, to assess the impact of *Nativo* 75 WG (Trifloxystrobin+ Tebuconazole), 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, 600 gha⁻¹, *Mancozeb* at a single concentration of 1000 gha⁻¹ 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* at 1000 gha⁻¹ and *Nativo* at 300 gha⁻¹ by recording 27.96% and 29.05%. The unsprayed control registered the maximum loss of 39.01 per cent after 12 days of storage. The plants treated with *Nativo* at 400 gha⁻¹ 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 fruits (17.8 mg CO₂ kg⁻¹ h⁻¹) favouring extended shelf life. The quality characters such as pulp pH, lycopene, ascorbic acid and titratable acidity were found not influenced by any of the treatments. However, the measurements on chromacity indicated that *Mancozeb* had positive influence on colour (redness) of the fruit by recording the highest 'a' value of 24.2. *Nativo* treatments also resulted in 'a' value of >20 while unsprayed control registered only 18.1.

Biography

P. Jeyakumar has completed his M.Sc. (Agriculture) in Crop Physiology from Tamil Nadu Agricultural University (TNAU), Coimbatore and Ph.D. from Forest Research Institute (FRI), Dehradun, India. He has undergone postdoctoral training in postharvest physiology at McGill University, Canada and ARO Volcani Centre, Israel. He has received the Best Researcher Award from Tamil Nadu Agricultural University, Coimbatore and Eminent Scientist Award from National Environmental Science Academy, New Delhi. He has published more than 60 papers in reputed journals and presented many papers in International Conferences across the globe. Prof. P. Jeyakumar is serving as the Technical Editor of The Madras Agricultural Journal and as Research Coordinator, Department of Crop Physiology, TNAU, Coimbatore, India.

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