

Title Changes in ethylene and polyamine levels and their influence on shelf life in antioxidant treated ripening tomato fruits

Author Rajasekhar, M, Reddy Y N, Sudhavani V

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords ripening; tomato

Abstract

A study was initiated at College of Agriculture, Hyderabad, India to investigate the relationship between ethylene and polyamine production and shelf life of ripening tomato fruits treated with antioxidants, sodium benzoate (SB) and ascorbic acid (AA) and data was recorded during storage at ambient conditions. PLW and rate of ethylene production were highest in untreated control fruits (6.63% and 17.18 $\text{nl.g}^{-1}.\text{h}^{-1}$) and lowest in SB 1000 ppm (3.30% and 8.60 $\text{nl. g}^{-1}.\text{h}^{-1}$). Change in colour of fruits was rapid in control and slow in SB 1000 ppm. Shelf life was highest in SB 1000 ppm treated fruits (28 days) and lowest in control (15 days). Polyamine content was highest in SB 1000 ppm (5.81 11M/g) and lowest in control (4.76 11M/g). Titrable acidity was high in fruits treated with SB 1000 ppm (0.53 g/100 ml) and lowest in control (0.44 g/100 ml). Reducing sugars were high in AA 1000 ppm (4.67%) and lowest in control (3.51 %). Shelf life had a significant negative correlation with PLW, change in colour and ethylene production and polyamine content with ethylene production. Rate of ethylene production was low initially but peaked on 9th day, while polyamine content peaked by 6th day and decreased gradually until 12th day corresponding to the increase in ethylene production. The results confirmed that both ethylene and polyamines share a common precursor and the antioxidant treatments have blocked ethylene production by their free radical scavenging property facilitating production of polyamines from SAM instead of ethylene during initial period of storage.