The Plant Production (Scientific Journal of Agriculture), 35(2), Summer, 2012

The Effects of Using SO_2 Releasing Sachets to Control of Decay and Postharvest Quality of Tomato Fruit cv. Chef

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Received: 3 March 2011 Accepted: 2 May 2012

Abstract

Each year, due to postharvest losses, a significant proportion of horticultural products doe's not reach consumers. One of the postharvest losses factors is the contamination of fruits and vegetables by different pathogens i.e. fungi and bacteria. Currently, different synthetic fungicides are used to control these pathogens. Various problems related to the use of these compounds the development of alternative safe methods. Using SO_2 releasing sachets is an inexpensive and low risk method that could fumigate fruits during storage and marketing by releasing gas continuously. In this research, the effects of using SO_2 releasing sachets at different concentrations (0, 79, 132 and 184 mM sodium metabisulphite) on the physicochemical changes of tomato fruit cv. “Chef” were studied during the storage period (0, 3, 6, 9 and 12 days) at 5°C. Different quality parameters including weight loss, firmness, lycopen content, Vit C, titratable acidity, total soluble solids, phenolics content, antioxidant capacity and decay percent were evaluated. The results showed that treatment with SO_2 releasing sachets effectively reduced the decay incidence and increased the phenolic compounds concentration. Also, SO_2 gas had no negative effects on fruit red color produced by lycopen pigment. Sodium metabisulphite at 79 and 132 mM concentrations showed the most desirable effect on maintaining color and Botrytis decay control at different time intervals.

Keywords: *Postharvest, Sachet, SO_2 and Tomato*