

Title            Role of AOX inhibitors, promoters, polyamines and antioxidants on the biochemical parameters of grape cv. Thompson seedless during senescence

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### **Abstract**

Experiments were conducted to study the effects of postharvest treatments with AOX inhibitor (propyl gallate), AOX promoter (malic acid), polyamine (spermine), antioxidant (sodium benzoate), and storage temperatures on the shelf life of grape cv. Thompson Seedless in Andhra Pradesh, India. Fruits were kept at room (RT) and low (LT; 8 deg C) temperatures. At RT and LT, shelf life was longest with propyl gallate (15.66 and 48.67 days), followed by spermine (11.33 and 40.00 days), and shortest with malic acid (6.33 and 30.33 days, respectively). Control and sodium benzoate treatments were at par at RT (9.33 days). Sodium benzoate recorded a shelf life of 37.67 days at LT. At RT, fruit spoilage was lowest with propyl gallate (15.59) and highest with the control treatment (49.39). Sodium benzoate was intermediate. Spoilage in the control and malic acid treatments was at par with each other. At LT, spoilage was highest with malic acid (24.6) and lowest with propyl gallate (9.56). During storage, the total respiration, alternative respiration, ethylene, catalase and lipoxygenase activities decreased gradually until the end of shelf life. Among all treatments, alternative respiration, catalase and ethylene levels were lowest with propyl gallate, while lipoxygenase activity was lowest with spermine at RT. At LT, propyl gallate was more effective than the control and spermine treatments in decreasing lipoxygenase activity. Respiratory response was proportional to the ethylene produced. Total respiration and alternative respiration followed similar trends. Propyl gallate, in particular, and spermine, in general, reduced the alternative respiration aside from reducing lipoxygenase activity and ethylene levels, thereby increasing shelf life.