

Understanding and Improving post-harvest resilience in strawberry

Mohamed M. El-Mogy¹ and Hilary Rogres²

¹Cairo University, Faculty of Agriculture, Giza, Egypt

Elmogymmm75@yahoo.com, elmogy@agr.cu.edu.eg

²Cardiff School of Biosciences, Cardiff University, Wales, UK.

RogersHJ@cardiff.ac.uk

Abstract

Fruit and vegetables are basic for a healthy diet. Up to 2.7 million lives could be saved annually with sufficient fruit and vegetable consumption. Low fruit and vegetable intake is among the top 10 selected risk factors for global mortality. Worldwide, low intake of fruits and vegetables is estimated to cause about 19% of gastrointestinal cancer, about 31% of ischaemic heart disease and 11% of stroke. Melatonin, produced by all eukaryotes is a potent antioxidant and treatment of plants and fruit with melatonin can mitigate effects of abiotic stress by reducing reactive oxygen species and interacting with hormone signalling. Strawberries are a high value crop, rich in bioactive compounds of known health benefits. In this study, the impact of 0, 50, and 100 μ l melatonin on maintaining nutritional quality of strawberry fruits was investigated during storage at 4 C° for 12 days. Melatonin treatment at 100 μ l reduced water loss and decay percentage. Also, strawberry fruits treated with melatonin exhibited higher total phenolic compounds, total soluble solids, total anthocyanin and total acidity. Volatile organic compounds (VOCs) were increased with increasing storage period and it's not affected by melatonin treatment. Moreover, melatonin treatment enhanced respiration of fruits by increasing CO₂ emission. Ethylene production was significantly affected by melatonin treatment.