Effect of ozonation process on the energy metabolism in raspberry fruit during storage at room temperature

Tomasz Piechowiak, Patrycja Sowa and Maciej Balawejder

Food and Bioprocess Technology 14: 483–491. (2021)

Abstract

The major aim of this research was to investigate the effect of ozone treatment on the energy metabolism in raspberry fruit during storage at room temperature. Raspberries were ozonated with an ozone concentration of 8–10 mg L^{-1}, for 30 min, every 12 h of storage at room temperature for 72 h. The results indicated that ozone treatment significantly enhanced the activities of mitochondrial respiratory enzymes, such as succinate dehydrogenase, cytochrome C oxidase, and H^+-ATPase, which contributed to maintain the high level of ATP and energy charge in fruit during storage. Moreover, the energy metabolism in mitochondria was closely correlated with the antioxidant potential of raspberry fruit. This study has given an experimental evidence that ozonation procedure in proposed process conditions significantly affects the mitochondrial respiratory system leading to maintain the high quality of the fruit over a long period of storage at room temperature.