Energy storage under fruit

Application of edible coating material like sago, arrowroot and waxol at 10 per cent concentration to Annona squamosa L. fruits resulted in increase in shelf-life by 5-8 days when compared to untreated fruits. The fruits treated with fine coating of sago (10% and stored in zero energy cool chamber registered gradual ripening, retained excellent fruit quality with high TSS, sugars ...

Melatonin (MLT) is a vital signaling molecule that regulates multiple physiological processes in higher plants. In the current study, the role of MLT in regulating chilling tolerance and its possible mechanisms in litchi fruit during storage at ambient temperatures after its removal from refrigeration was investigated. The results show that the application of MLT (400 mM, ...

Fruit firmness was gradually decreased during storage, but it was slower in L-arginine-treated fruit. The highest tissue firmness (3.8 kg cm -2) was noted in fruit treated with 0.6 mM L-arginine. The chilling was gradually increased during storage. Fruits treated with L-arginine showed a lower chilling injury than the control fruit.

Zero energy cool chambers along with packaging materials, ventilation and anti fungal treatments can help in minimizing the losses of ascorbic acid in the stored lemon fruits to some extent compared to the storage under ambient conditions of storage (Prabha et al. 2006). Different types of evaporative cooler have been reported in the literature ...

Browning is a major postharvest problem in litchi fruit which results in reduced shelf life and commercial value. Fruit browning could be related to deficient energy, which could result in a gradual loss of compartmentalization of enzymes and their substrates and then initiates enzymecatalyzed browning reaction. Experiments were conducted to further examine the ...

Riboflavin is a water-soluble B vitamin (VB 2) that binds to different proteins in the body to form flavoproteins, which are involved in energy metabolism and various biological oxidation reactions (Batghare, Roy, Khaire, & Moholkar, 2020).Riboflavin is heat stable and promotes crop stress tolerance, induces disease resistance in fruit, and extends fruit shelf life ...

Harvested fruit undergo carbon and energy deprivation. However, the events underlying this energy-related stress in detached fruit and their involvement in cell damage ...

Normally, a decrease in malate content occurs in pome fruits after prolonged storage under hypoxia, which can be attributed to advanced ripening, and higher malate contents in the inner cortex compared with the outer cortex is probably the result of the lower respiration rate of this tissue due to reduced oxygen availability (Hatoum et al., 2016).

Thus, in the current study, ATP was applied in strawberry fruit under elevated CO 2 atmosphere. Conclusion. In conclusion, our present study found that exogenous 1 mM ATP treatment delayed the decrease of energy charge in postharvest strawberry fruit under 20 % CO 2 atmosphere. Exogenous ATP showed no adverse effects on fruit firmness and color ...

This study assessed the potential of a novel two-factor dynamic storage system DCA-CD Plus, which allows estimation of the oxygen partial pressures and room temperatures ...

1. Introduction. Many energy producing or consuming systems exhibit intermittent outputs. The peaks and valleys of such energy systems may be significantly reduced or smoothed out by coupling them to energy storage systems [].Long or short-term energy storage systems can be grouped into three: mechanical, electrical and thermal.

The energy charge of all fruit gradually decreased with increasing storage time, especially fruit in the TF5 group (Figure 6D). As expected, the decline of the energy charge of apple fruit stored ...

The aim of this study was to evaluate the effect of ozone treatment on the mitochondrial energy metabolism in blueberry fruit during storage as well as to determine the relationship between the activity of mitochondria and the antioxidative properties of ozonated fruit. Blueberry fruit was stored for 28 days at 4 °C and ozonated daily with gaseous ozone at the ...

The concept of dynamic controlled atmosphere (DCA) in storage is based on continuous monitoring of the lower oxygen limit (LOL) and setting the oxygen partial pressures (pO 2) dynamically according to stress signals sent by the stored fruit (Prange et al., 2013).The LOL is defined as the lowest oxygen level tolerated by the fruit, to slow down metabolism and ...

During storage under ambient conditions, the CI index, pericarp color and relative electrical conductivity (REC) were measured at 5 h intervals. ... Pan Y., Yuan M., Zhang W., Zhang Z. Effect of low temperatures on chilling injury in relation to energy status in papaya fruit during storage. Postharvest Biol. Technol. 2017; 125:181-187. doi ...

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Insulation is critical for reducing energy use in controlled environment storage. As a rule of thumb, the

R-value recommendation for walls and ceiling for refrigerated storage in the region is R-30 (ft2 °F h/BTU) of a foam insulation, although the economic optimum can vary depending on the prevailing climate and operating conditions of the storage system (Sanford ...

Several factors influence and accelerate fruit senescence, with the most relevant being respiration, providing energy for maintaining metabolism, dehydration and fungal activity . Consequently, the degradative processes associated with postharvest senescence impact fruit quality traits, i.e., aspect, texture, taste, aroma and nutritional ...

This review investigates the electrochemical energy storage electrode (EESE) as the most important part of the electrochemical energy storage devices (EES) prepared from fruit-derived carbon.

Excluding Alberta, which holds 300 GW of 18-h storage, the baseline"s energy storage is 99% short-duration energy storage (under 10 h duration). Throughout this paper, we reference the marginal ...

M. Al-Busoul 125 characteristics of solar radiation which are that the incident radiation energy must be considerably higher than the world average 3.82 kW/m2day, and high number of sunny days per ...

Metabolic changes occurring in ripe or senescent fruits during postharvest storage lead to a general deterioration in quality attributes, including decreased flavor and "off-aroma" compound ...

This review investigates the electrochemical energy storage electrode (EESE) as the most important part of the electrochemical energy storage devices (EES) prepared from fruit-derived carbon. The EES devices include batteries, supercapacitors, and hybrid devices that have various regular and advance ...

The high energy usage associated with cooling the product jeopardizes the sustainable and economic viability of the storage of locally produced fruit and stands as a major contributor to the carbon footprint across the entire fruit production chain.