HJ Solar Energy

Energy storage under fruit

Overview

An additional field of investigation involves the tolerance of fruits to cold stress occurring during storage. Cold-stored fruits re-direct their metabolism, starting from changes in gene expression, with different levels of tolerance to cold stress depending on the genetic background.

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The extension of commercial life and the reduction of postharvest losses of perishable fruits is mainly based on storage at low temperatures alone or in combination with modified atmospheres (MAs) and controlled atmospheres (CAs), directed primarily at reducing their overall metabolism thus.

In the post-harvest phase, fruit is inexorably subjected to extrinsic stressors that expedite energy expenditure and truncate the storage lifespan. The present study endeavors to elucidate the response strategies of litchi to the alterations of energy state caused by 2,4-Dinitrophenol (DNP).

Postharvest physiology is crucial in fruit production, influencing shelf life, quality, and nutritional value. After harvesting, fruits continue physiological changes due to respiration, ethylene production, and water loss, which can cause rapid deterioration if not managed properly. Different.

Controlled atmosphere (CA) with high CO 2 concentration can prolong storage life by affecting fruit quality. Our study probed into the effect of CA storage on the pomegranate fruit quality as well as antioxidant attributes at 5 ℃ for 30 d, plus at 18 ℃ for 9 d in simulate marketing conditions. The.

Low-temperature storage is used to extend the shelf life of fruits, but prolonged storage at temperatures below tolerable levels may cause postharvest chilling injury (PCI) in sensitive commodities. This review aims to highlight adenosine triphosphate (ATP) activation and the interplay of. Does storage time affect the energy charge level of fruit?

The energy charge level of all maturity stages decreased with increasing storage time, especially in stage I fruit (Fig. 6 D). Between 50 and 100 d of cold storage, the energy charge level of stage I fruit was, on average, 21.1 and 17.9 % lower than that of the stage II and III fruit, respectively ($P < 0.05$).

How do we extend commercial life of perishable fruits?

The extension of commercial life and the reduction of postharvest losses of perishable fruits is mainly based on storage at low temperatures alone or in combination with modified atmospheres (MAs) and controlled atmospheres (CAs), directed primarily at reducing their overall metabolism thus delaying.

How does fruit respiration affect metabolism during postharvest storage?

Fruit respiration during postharvest storage directly affects primary metabolic pathways, such as glycolysis, starch metabolism, and the tricarboxylic acid cycle (TCA), which account for changes in sugar, amino and organic acid levels. Indeed, carbohydrates, organic acids, proteins and fats are the main respiratory substrates during fruit storage.

Why is refrigerated fruit storage important?

Thus, refrigerated storage is the most common method used to delay ripening, fruit respiration, enzymatic activities, and the development of pathogen infections, and, therefore, extend fruit shelf-life . However, cold storage can provoke the development of a physiological disorder called chilling injury (CI).

How do you store fruit?

After storage at 10 °C and 90–95 % relative humidity (RH) for 1 d, the fruit were transferred to cold storage (0 °C, 90–95 % RH) for 100 d. For the antioxidative and enzymatic activities, 15 fruit were sampled every 10 d, peeled, cut into pieces, mixed, frozen immediately in liquid nitrogen, and then stored at -80 °C until further analysis.

Why does ripe fruit lose firmness during postharvest storage?

Softening during postharvest storage is a key physiological process leading to ripe fruit firmness; however, excessive loss of firmness as a consequence of overripening can prompt physical damage and pathogen attack, and consequently lead to an important decrease in fruit quality.

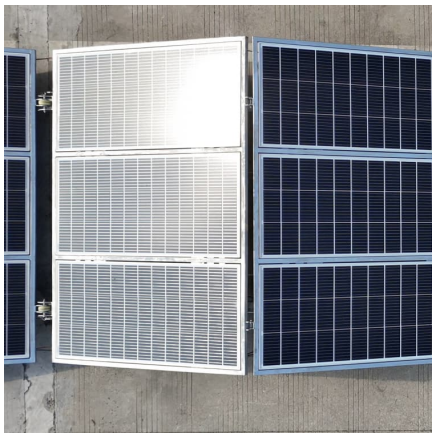
Energy storage under fruit

Decentralized solar-powered cooling systems for fresh ...

Decentralized cold-storage systems for fresh fruit and vegetables are reviewed. In addition to economic, social, technological and ...

Isothermal Storage Delays the Senescence of Post ...

The purpose of this work was to elucidate the influence of TF (5 ± 5 °C, and 5 ± 1 °C) and CT (5 ± 0.1 °C served as an isothermal state) ...



Evaporative cooling system for storage of fruits and vegetables

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 ...

Biochemical and molecular changes in peach fruit exposed to ...

Storage or transportation temperature is very important for preserving the quality of fruit.

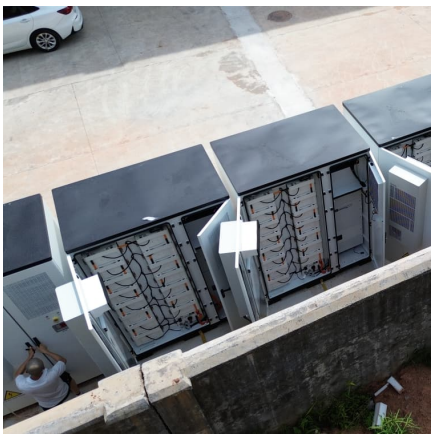
However, low temperature in sensitive fruit such as peach can induce loss of quality. Fruit ...

Effects of bruising of 'Pink Lady' apple under impact loading in ...

The bruising phenomenon of apple fruit under impact loading is still a very important problem to be solved in order to design optimal harvest and processing systems and ...

Cold shock treatment enhances cold tolerance in peach fruit ...

However, peach fruit are susceptible to cold stress and chilling injury limits the storage life of peach fruit under low temperature (Lurie and Crisosto, 2005). Internal browning ...



Recent Advancements in Postharvest Fruit Quality and

The effects of preharvest applications on postharvest behavior are determinative in terms of fruit quality and storability [3]. The preharvest application of chemical ...

The roles of exogenous ATP in postharvest fruit and vegetable: A

Current studies indicate the multiple roles of energy status in regulating postharvest physiological activities and suggest that the energy-related handling is an ...

Controlled atmosphere storage with high CO2 concentration ...

Background Pomegranate is susceptible to low temperature. Controlled atmosphere (CA) with high CO2 concentration can prolong storage life by affecting fruit quality. ...

Magnetic field delays the senescence of strawberries by ...

Strawberries are prone to rapid quality deterioration after harvest. Research has confirmed that a magnetic field can improve fruit quality during postharvest storage. However, ...

Primary Metabolism in Fresh Fruits During Storage

Successful application of these storage technologies to fruits must consider their effects on the metabolism of carbohydrates, organic acids, amino acids and lipids.

Molecular physiology for the increase of soluble sugar ...

This study sheds light on the key role of some key genes related to sink strength and storage for soluble sugars (glucose and fructose) storage in citrus fruit under drought stress.

[TEMPERATURE MANAGEMENT AND CHILLING INJURY OF ...]

Refrigeration is an important means of maintaining fresh quality while extending the postharvest life of highly perishable tropical and subtropical fruits. Rapid postharvest cooling and cool ...

PpERF17 alleviates peach fruit postharvest chilling injury under

Internal browning (IB) is a common chilling injury (CI) feature in peach fruit after prolonged cold storage. Our previous study demonstrated that low O_2 and ...

Novel insights into modified atmosphere mediated cold tolerance ...

Internal browning is a common symptom of chilling injury (CI) of peach fruit during postharvest cold storage, leading to a significant loss in the mar...

Research progress of cold chain transport technology for storage fruits

Phase change materials (PCMs) have become a research hotspot in the field of energy storage due to their high energy storage density. Fruits and vegetables have the characteristics of ...

Effect of nitric oxide on energy metabolism in postharvest banana fruit

CI symptoms in banana fruit include rapid peel browning, pitting, and failure of fruit softening, which considerably reduce commercial quality and consumer acceptance (Jiang ...

A Cooling Atlas for preserving fruit and vegetables in low

Preserving fruit and vegetables after harvest is especially relevant for low- and middle-income countries (LMIC) for food and nutrient security, reducing poverty, and ...

Controlled atmosphere storage with high CO2 concentration ...

Controlled atmosphere (CA) with high CO2 concentration can prolong storage life by affecting fruit quality. Our study probed into the effect of CA storage on the pomegranate ...

Effects of reactive oxygen species on fruit ripening and ...

ROS are involved in both the fruit ripening process and in regulating the storage quality of the fruit, improving fruit quality and thus generating economic benefits (Torun and ...

Explanation of CA storage

The optimal (CA) storage conditions for certain products of fruit and vegetables always depend on variety, time of harvest and, region, soil type, growing conditions, etc. Based on research and ...

Physiological and Biochemical Response of Tropical Fruits to ...

Anoxia/Hypoxia and Cell Metabolic Changes Under hypoxic/anoxic conditions, the electron transport chain in the mitochondria leads to the progressive suppression and the inhibition of ...

Mechanisms of Litchi Response to Postharvest Energy Deficiency ...

Our results reveal the mechanisms by which litchi responds to energy deficiency during storage through regulation of energy and sugar metabolisms, contributing to the ...

Melatonin enhanced chilling tolerance and alleviated peel ...

In the present results, compared with that in the control fruit, lower content of phenylalanine was detected in melatonin treated fruit peel, which may be one of the reasons ...

Isothermal Storage Delays the Senescence of Post-Harvest Apple Fruit

The purpose of this work was to elucidate the influence of TF (5 ± 5 °C, and 5 ± 1 °C) and CT (5 ± 0.1 °C served as an isothermal state) storage environment on the antioxidant ...

Is ATP a signaling regulator for postharvest chilling tolerance in ...

Low-temperature storage is used to extend the shelf life of fruits, but prolonged storage at temperatures below tolerable levels may cause postharvest chilling injury (PCI) in ...

The Effects of Storage Conditions on Postharvest Physiology of ...

This review examines the impact of storage conditions on postharvest physiology, emphasizing the importance of optimal storage practices to enhance fruit quality, ...

Carbon footprint calculating for fruit processing and storage

Monitoring GHG emissions is a key tool in assessing energy efficiency in on-farm processing and storage operations. By actually measuring the consumption of various ...

Mitigation of chilling injury in mango fruit by methyl jasmonate is

Pre-storage application of oxalic acid alleviates chilling injury in mango fruit by modulating proline metabolism and energy status under chilling stress Food Chem.

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