PostBoost™

Biological Solution
From Crop to Fruit

Our Partners

ICA INTERNATIONAL CHEMICALS (PTY) LTD

LUXEMBOURG

Agricultural Research Organization · Volcani Center ·

COPIA Ag & Food
Funding Sustainable Technologies

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General Overview

Depending on application method and timing, PostBoost can be used either as a post-harvest or a pre-harvest product. As a post-harvest product, it extends the shelf life of fruits and improves their color. It also improves sensory parameters and increases health parameters of fruits and fruit juices. As a pre-harvest product, it serves as a biological solution for crop protection against various pests and diseases (fungi, insects, bacteria and viruses).

Scientific Background

Like many other agricultural solutions, PostBoost has been developed in an academic research lab at the Agricultural Research Organization (ARO) – Volcani Center, Israel.
Over the past six years, Prof. Michal Oren-Shamir, Dr. Noam Alkan and Prof. Yigal Elad have been studying ways to biologically improve fruit protection, influence and enhance the taste and aroma of fruits, and extend their shelf life – ultimately making them more attractive to consumers.

Following successful results in labs and greenhouses, PostBoost has been further developed and examined by agricultural input suppliers from South Africa and Israel who conducted numerous field and greenhouse trials, testing the product as a pre-harvest as well as a post-harvest treatment.
The trials and studies clearly demonstrated that PostBoost can effectively protect crops against various pathogens such as *Tuta absoluta,* red spider mites, gray mold and powdery mildew. It also extends the shelf life of fruits and protects them from various pathogens, such as anthracnose, stem-end rot and *Alernaria alternata.*
In addition, it enhances the red color of mangos and apples, and provides protection against chilling injuring in mangos, oranges and lemons.

Other amazing benefits of PostBoost were discovered while analyzing the aroma and sweetness of the fruits. Improvement was shown in sensory parameters of fruits and fruit juices, especially in the aroma and taste of mangos, grapes and grape juice.

Today, PostBoost Ltd. is a portfolio company of COPIA Agriculture and Food Technologies L.P., an Israeli VC fund that invests in technologies which improve sustainability along the food supply chain and bridge the gap between academic research and the industry.

Benefits

- ✓ Protects Crops Biologically
- ✓ Extends Fruit Shelf-Life
- ✓ Safer to Use
- ✓ Reduces Chilling Injuries
- ✓ Improves Flavor
- ✓ Improves Nutritional Values

Enhancement of Red Color and Flavor of Mangos

Mango trees were treated with PB* or standard PDJ treatment a week or two before harvesting. Fruits were harvested from the tree and were stored at 12 degrees for three weeks and an additional week in a shelf-life assessment room at a temperature of 20 degrees.

After a week in a shelf-life room, the fruits were assessed with various parameters:

Red surface - area of the fruit color was evaluated by percentage. Each mango was assessed for percentage of red surface area after each treatment at different time points: at harvest**;** after cold storage at 12°C**;** and after shelf-life assessment room at 22°C.

Red intensity was evaluated on a scale of zero to five for each mango using a visual rating scale, where zero = no red color, one = pale red color, and five = very intense red color.

HUE and a* - the skin color (hue and a*) was measured for each treatment using a CR-400/410 Chromometer (Konicka Minolta, Osaka, Japan) on the equatorial line of each fruit at the reddest point. The hue angle measures color represented as follows: 120 represents green color; 60–70 represents yellow color; 30–40 represents red color.

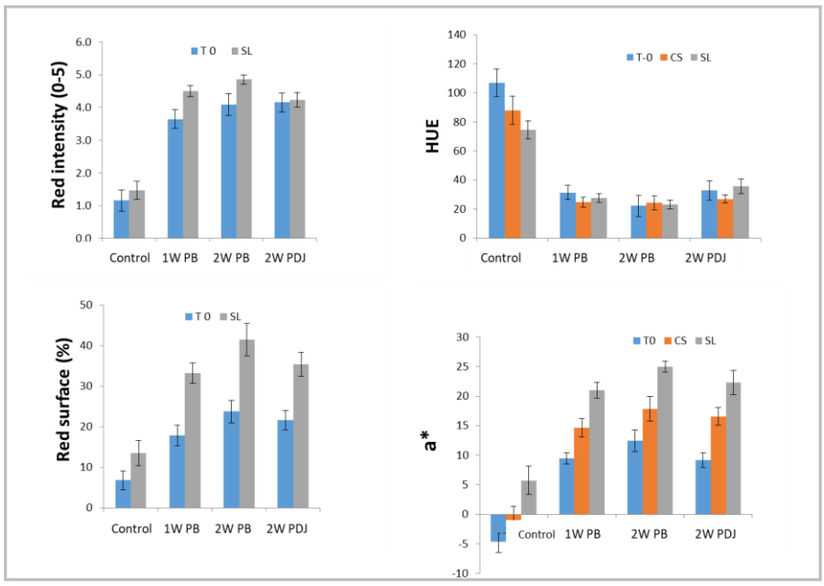
Chlorophyll, **Anthocyanin** and **Flavonoid** content were measured by the Multiplex III fluorescence detector (Force A, Orsay, France), which consists of 12 fluorescence signals. The ratios between these signals in different mathematical expressions were interrelated to the fluorescence of major chemical groups**:** e.g., Anthocyanin (**FER_RG** - the ratio of infra-red emission excited by red or green light)**;** Flavonoids (**FLAV**)**;** Chlorophyll (**SER_R**) and (**SFR_R**).

*** Note**: Code for PostBoost is "PB" in this document.

Enhancement of Red Color in Mangos (Kent)

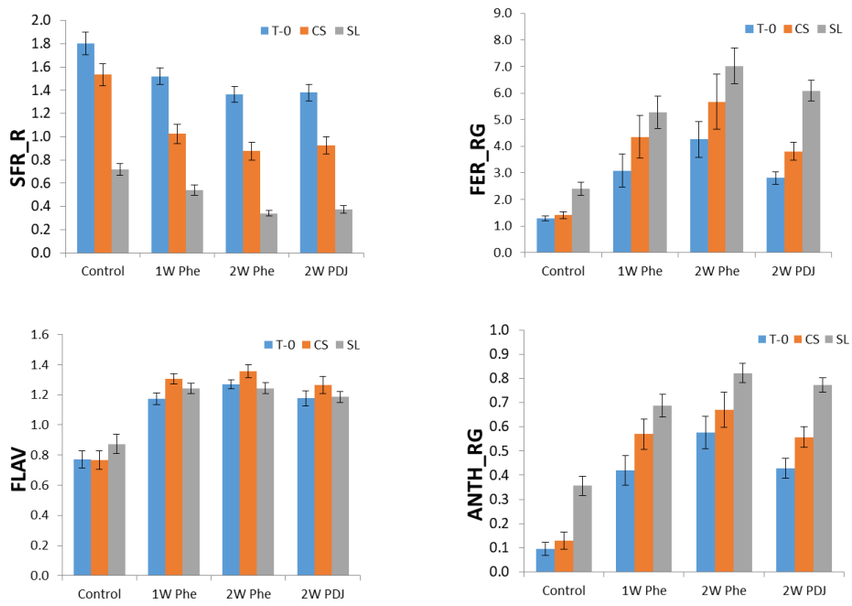
Color Indices

T-0: Harvest; CS: after Cold Storage; SL: after Shelf-life.



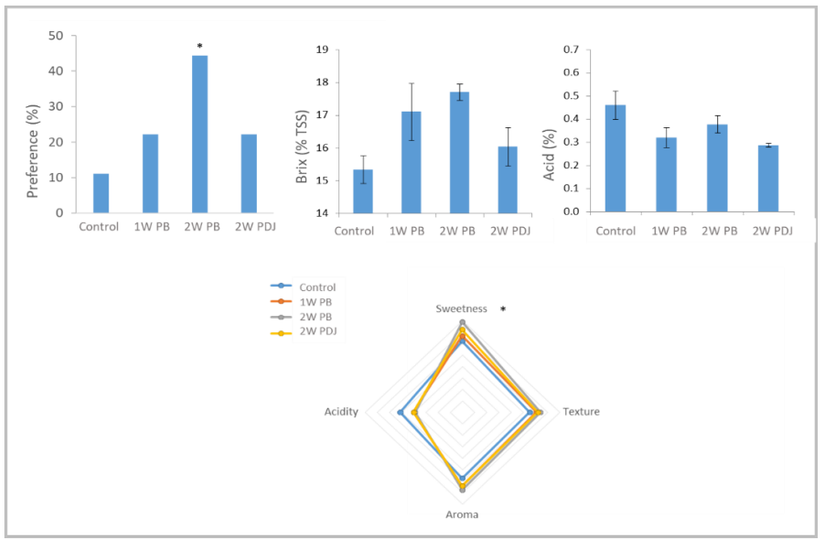
Fluorescent Indices

T-0: Harvest; CS: after Cold Storage; SL: after Shelf-life



Enhancement of Mangos' Flavor (Kent)

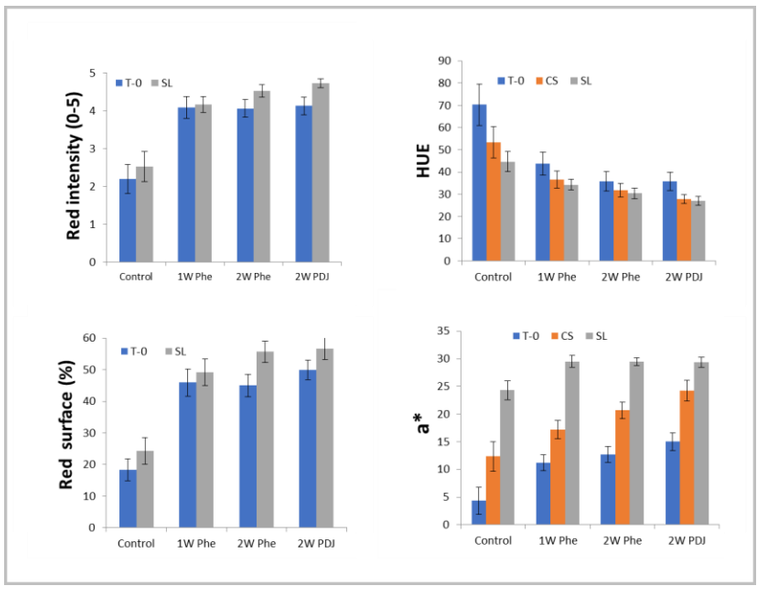
A group of tasters (N=20) received samples of fruit (treated and control group) and noted their preference of the fruit. Fruits sprayed two weeks before harvesting with PB were preferred due to their significantly sweeter and less sour taste and since they were slightly more aromatic.



Enhancement of Red Color in Mangos (Shelly)

Color Indices

T-0: Harvest; CS: after Cold Storage; SL: after Shelf-life



POSTBOOST

Fluorescent Indices

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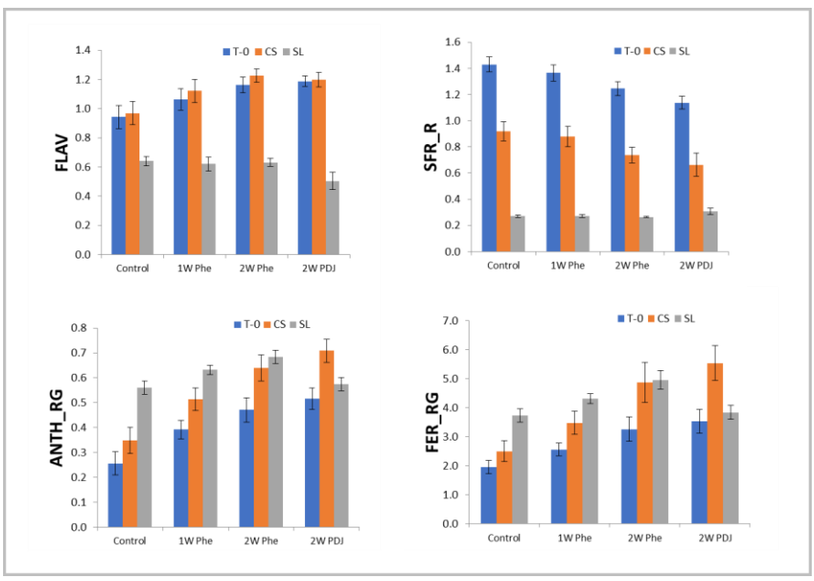

Enhancement of Mangos' Flavor (Shelly)

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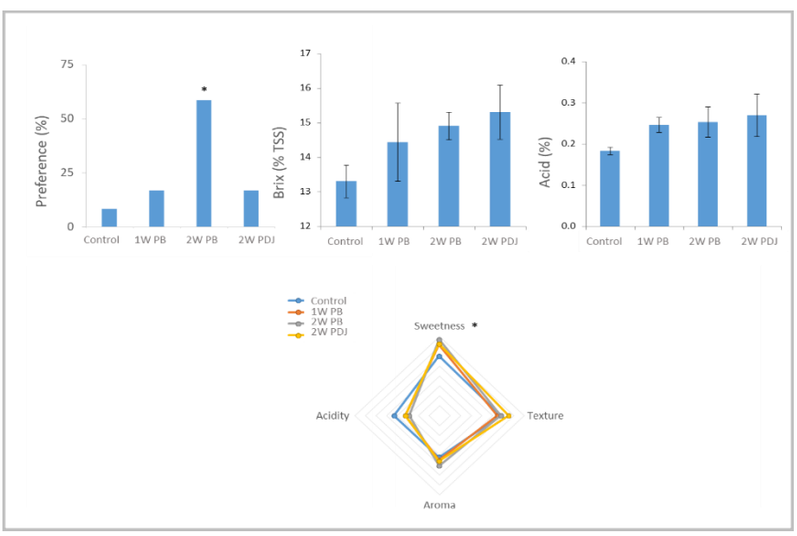

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