Effect of cooling time in color change in tomato

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Introduction

- Tomato is harvested usually at horticultural maturity.
- It is a climacteric commodity.
- For fresh market hand harvested.
- Packing in a packinghouse.
- It is necessary to remove field heat accumulation before storage.
Objectives

- Determine a better cooling time on tomato before storage.
- Evaluate color change in tomato after different cooling times.
- Evaluate the effect of those cooling times on tomato quality.
Tomato ripening

- Tomato (*Solanum lycopersicum*)

http://ripening-fruit.com/tomato
Materials and methods

- Mature green tomato
Materials and methods

Experiment

- Reduce temperature:
  - 35°C to 20°C in 24 Hours
  - 35°C to 20°C in 48 Hours
  - 35°C to 20°C in 72 Hours
Materials and methods

Measurements

- Color change: 2 weeks daily
Label treatments & times above. MAR

Timeline color change
Materials and methods

Measurements

- pH, Acidity, °Brix
Specify what color value is being presented. MAR
There was a significant difference ($p \leq 0.05$) in all treatments, just since the day 2 until the day 7.

Specify what color value is being presented. MAR

<table>
<thead>
<tr>
<th>Color change in tomato</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>P values</td>
<td>0.0002</td>
<td>0.0001</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0003</td>
<td>0.0007</td>
</tr>
</tbody>
</table>
Results

**Acidity**

- Time in Hours: 24, 48, 72
- Values: 0.30, 0.35, 0.40

**pH values**

- Time in Hours: 24, 48, 72
- Values: 4.75, 4.70, 4.65

**°Brix**

- Time in Hours: 24, 48, 72
- Values: 4.65, 4.70, 4.60
Conclusions

- The difference between cooling times are important because when we cooling field heat slowly tomato start to change color later.

- The difference between cooling to 35°C to 20°C in 72 hours instead 24 we have less °Brix.

- When the temperature is reduced in 24 hours we have higher pH and

- Even with different cooling times color in tomato in a certain point has no difference.
Thank you and Questions