

1 **Involvement of ethylene in color changes and carotenoid biosynthesis in loquat**
2 **fruit (*Eriobotrya japonica* Lindl. cv. Algerie)**

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19 **Short title:**

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22 **Abstract**

23 *Eriobotrya japonica*

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31 *PSY PDS ZDS CYCB BCH*

32 *BCH*

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43 *BCH*

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46 **Keywords:**

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48 **1. Introduction**

49 *Eriobotrya japonica* *Rosaceae*

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91 *PSYI CYCB BCH*

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98 *CYCB LCYB LCYE*

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Citrus

130 **2. Materials and Methods**131 *2.1. Plant material and treatments*

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133 *Eriobotrya japonica*

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2.4. RNA extraction and cDNA synthesis

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2.5. Gene expression analyses by real time PCR

PSY PDS ZDS LCYB, CYCB BCH ACTIN

3. Results

3.1. Evolution of color index and pigment concentrations during on-tree loquat fruit maturation

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Expression of genes involved in carotenoid biosynthesis during on-tree loquat fruit maturation

PSY,

PDS ZDS;

lycopene -cyclase CYCB , -carotene hydroxylase BCH lycopene -

cyclase LCYB LCYE

PSY PDS ZDS CYCB

PSY PDS

ZDS CYCB

BCH

296 3.3. *Effect of ethylene and 1-MCP on color and carotenoid content in peel and pulp of loquat*
297 *fruit during postharvest storage*

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3.4. Effect of ethylene and 1-MCP on the expression of carotenoid biosynthetic genes in peel and pulp of loquat fruit

PSY PDS ZDS CYCB

BCH

LCYB

PSY

PSY

PDS

ZDS CYCB

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5. Discussion

PSY
PDS
ZDS CYCB BCH

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PSY,
CYCB BCH

PSY PDS ZDS CYCB

LCYB

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491		<i>BCH</i>	
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493			<i>PSY ZDS</i>
494	<i>CYCB</i>	<i>BCH</i>	
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499		<i>BCH</i>	
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502		<i>BCH PSY ZDS</i>	<i>CYCB</i>
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505			<i>BCH</i>
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510			<i>Arabidopsis</i>
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514			<i>PSY ZDS CYCB</i>

515 *BCH*

516 *ZDS* *BCH*

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529 **7. Acknowledgements**

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8. References

Eriobotrya

japonica

<https://doi.org/>

Citrus

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Carica papaya

pLCY-β2

Eriobotrya

japonica

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Eriobotrya japonica

Citrus unshiu

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Eriobotrya japonica

doi:

Citrus sinensis

Citrus sinensis

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Beta

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doi:

655 10.1074/jbc.271.40.24349

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Table 1.

		Observed	Reference
Carotenoid		max (nm)	max (nm)
1	All-E-Neoxanthin		
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3	All-E-Violaxanthin		
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11	9-Z-Violaxanthin		
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14	Lutein		
15	Zeaxanthin		
16	15-Z-Phytoene		
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18	Phytofluene		
19	All-E- Cryptoxanthin		
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22	Carotene		
23	All-E- Carotene		
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675 **Figure legends**

676 **Figure 1.**

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684 **Figure 2.**

a/b

685 *Eriobotrya*

686 *japonica*

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691 **Figure 3.**

692 *Eriobotrya japonica*

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696 *Z* *Z*

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699 **Figure 4.**

700 *Eriobotrya japonica* .

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702 PSY, PDS, ZDS. CYCB BCH

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708 **Figure 5.**

709 a/b

710 *Eriobotrya japonica*

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714 **Figure 6.**

715 *Eriobotrya japonica*

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720 **Figure 7.**

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722 *Eriobotrya japonica*

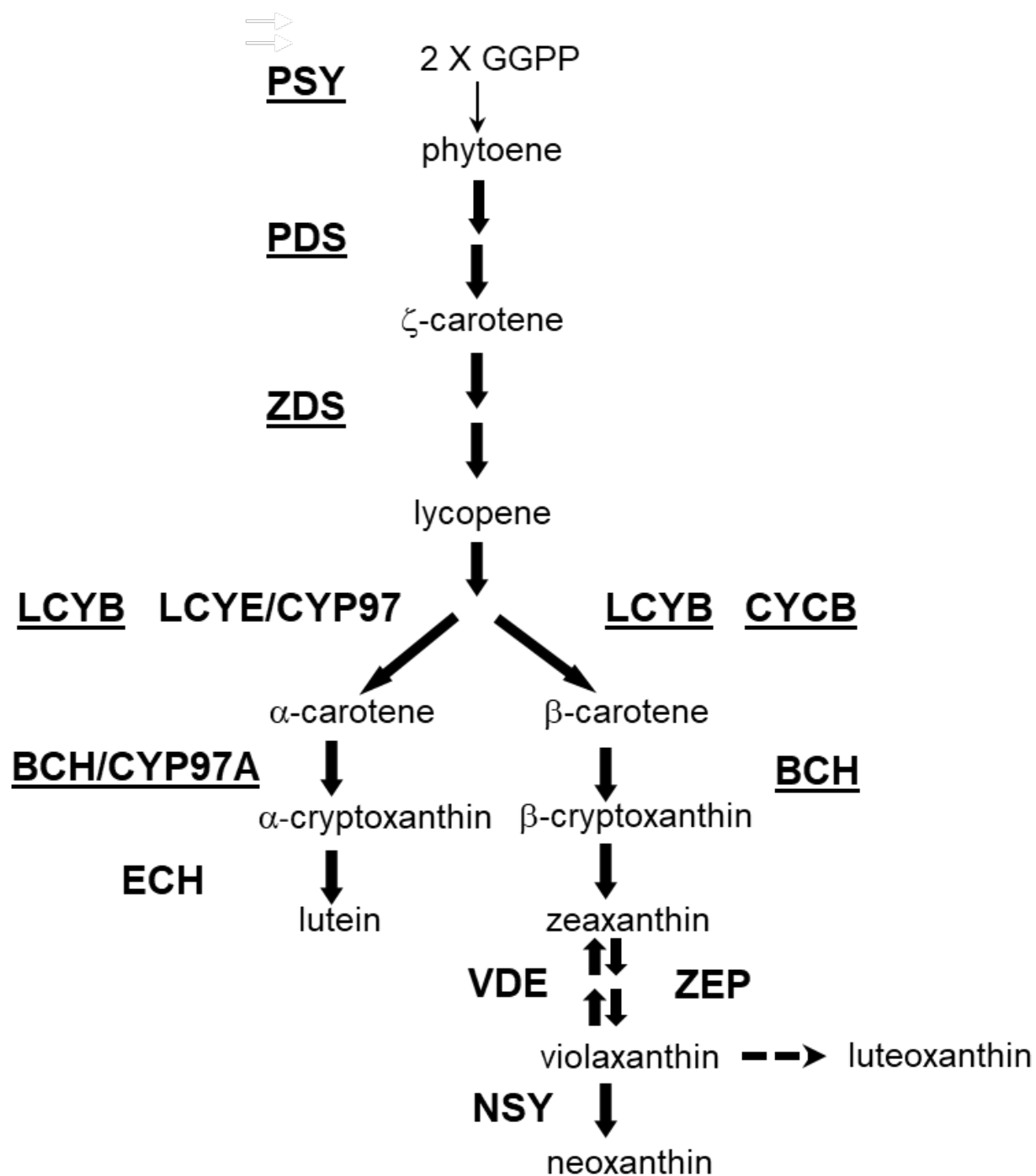
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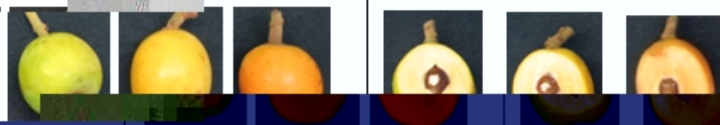
725 PSY, PDS, ZDS, CYCB BCH

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A



Color index (Hunter *a/b*)

0,4
0,2
0,0
-0,2
-0,4

B

Total carotenoid (mg kg^{-1})

80
60
40
20
0

C

Chlorophylls (mg kg^{-1})

D

60
50
40
30
20
10
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BK

Y

FC

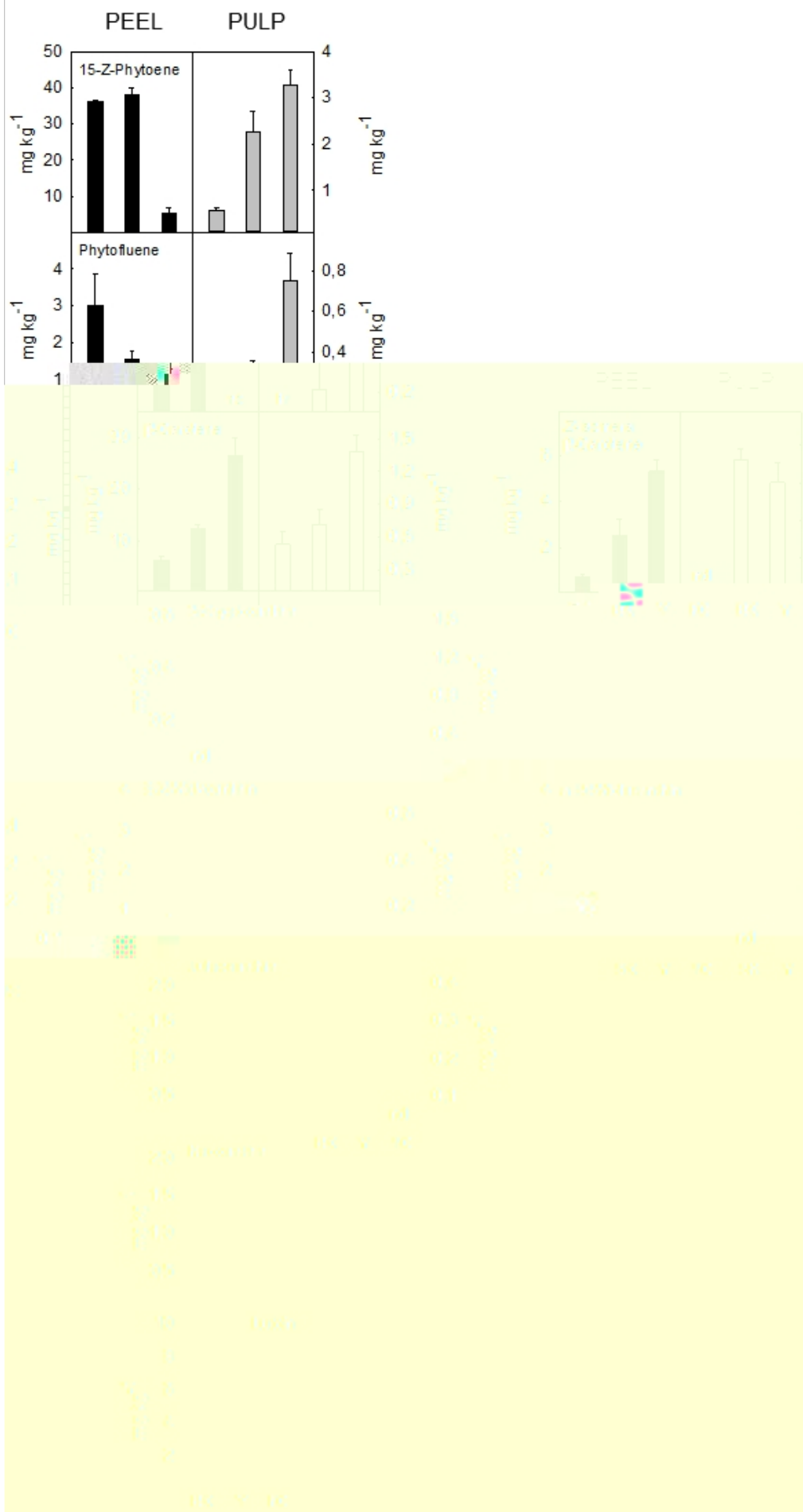
BK

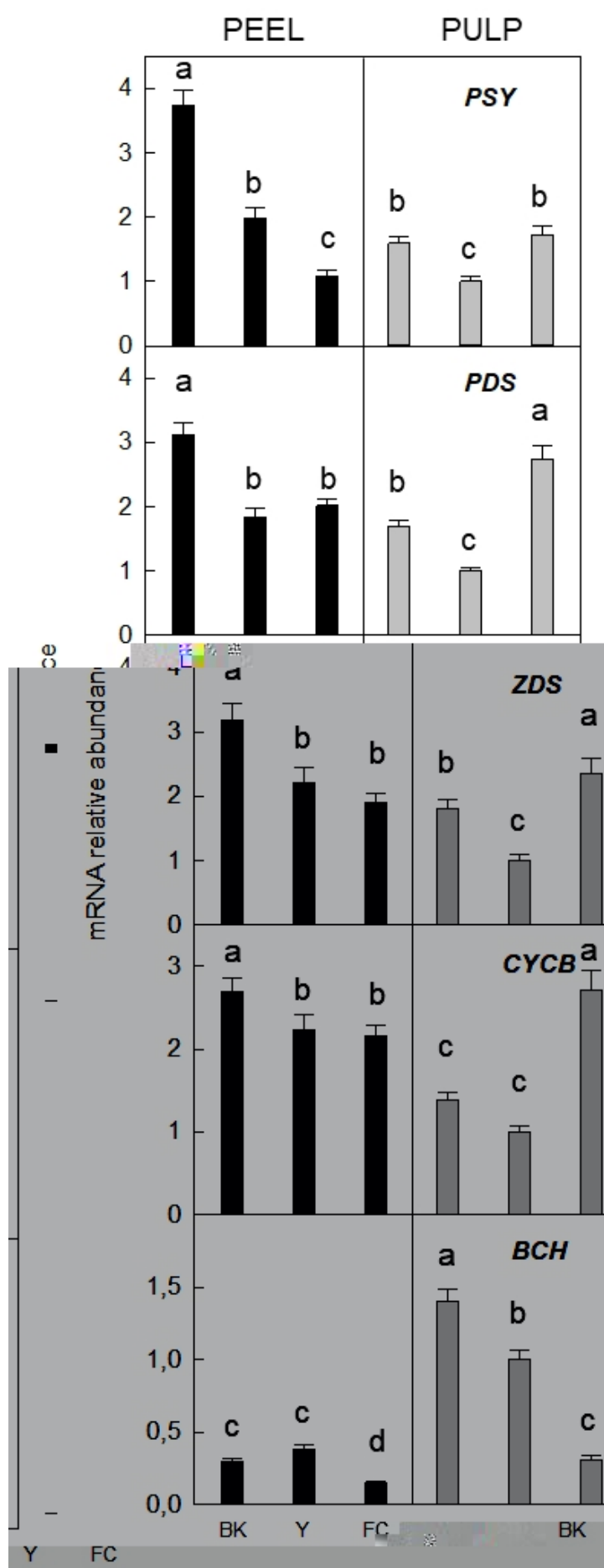
Peel

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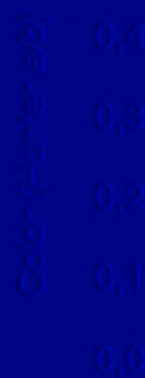
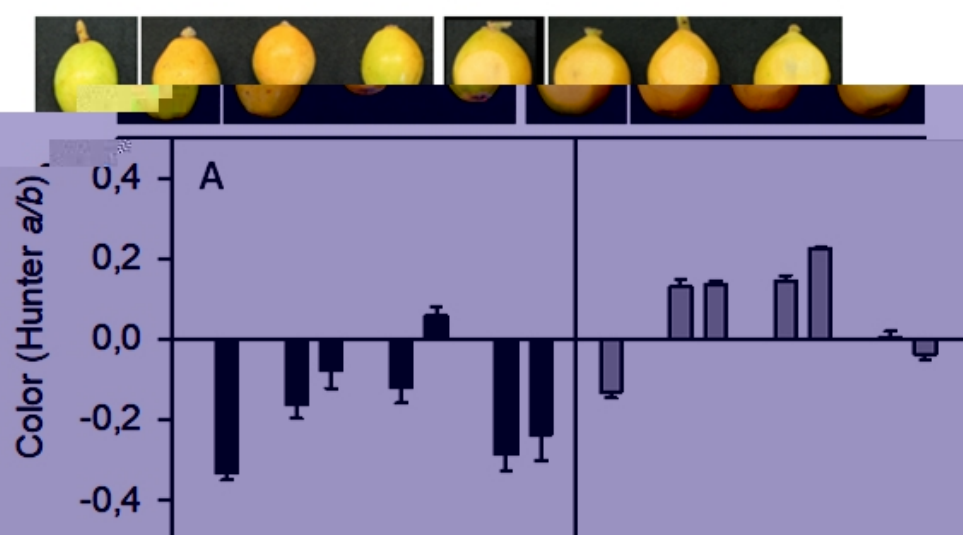
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PEEL

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