

**Table S1.** Changes in the content of carotenoids (µg/mL) in “Cara Cara” juice during 16 weeks of storage at different temperature.

| Week | mutatoxanthin | zeaxanthin  | β-cryptoxanthin | ζ-carotene   | β-carotene  | 13- or 15-cis-lycopene | lycopene   | phytoene     | phytofluene | cis-phytofluene | ester group 1 | ester group 2 | ester group 3 | total carotenoid |
|------|---------------|-------------|-----------------|--------------|-------------|------------------------|------------|--------------|-------------|-----------------|---------------|---------------|---------------|------------------|
| 4°C  |               |             |                 |              |             |                        |            |              |             |                 |               |               |               |                  |
| 0    | 0.25±0.08a    | 0.59±0.07a  | 1.20±0.14a      | 0.72±0.08a   | 10.48±0.68a | 0.35±0.04b             | 5.21±0.54a | 215.69±5.21a | 37.15±2.26a | 24.60±1.52a     | 7.00±0.39a    | 5.10±0.22a    | 0.72±0.05a    | 309.06±11.28a    |
| 2    | 0.25±0.06a    | 0.48±0.06ab | 1.00±0.08ab     | 0.58±0.06ab  | 9.73±0.47ab | 0.36±0.03b             | 5.04±0.27a | 209.55±6.78a | 32.00±3.14a | 27.66±1.88a     | 5.98±0.50ab   | 2.34±0.19b    | 0.64±0.05a    | 295.61±13.57a    |
| 4    | 0.24±0.03a    | 0.45±0.05ab | 1.03±0.12ab     | 0.5±0.04b    | 9.21±0.80ab | 0.35±0.03b             | 4.94±0.39a | 205.14±7.38a | 30.71±2.91a | 27.75±1.05a     | 5.6±0.62abc   | 1.65±0.11c    | 0.60±0.04a    | 288.17±13.55a    |
| 6    | 0.24±0.04a    | 0.39±0.04b  | 0.83±0.06ab     | 0.48±0.03b   | 8.75±0.77ab | 0.36±0.04b             | 4.74±0.54a | 208.40±8.47a | 28.18±3.21a | 28.04±1.26a     | 4.85±0.33bc   | 0.99±0.08d    | 0.68±0.06a    | 286.93±14.93a    |
| 8    | 0.25±0.04a    | 0.39±0.05b  | 0.90±0.08ab     | 0.45±0.06b   | 8.67±0.69ab | 0.52±0.05a             | 4.92±0.47a | 201.89±1.22a | 28.43±2.55a | 27.65±1.87a     | 4.76±0.43bc   | 0.73±0.06de   | 0.59±0.05a    | 280.15±16.62a    |
| 12   | 0.22±0.05a    | 0.34±0.04b  | 0.90±0.07ab     | 0.52±0.03b   | 7.78±0.45b  | 0.52±0.04a             | 4.77±0.56a | 196.08±9.88a | 32.87±1.85a | 24.07±1.47a     | 4.68±0.52bc   | 0.52±0.05e    | 0.74±0.06a    | 274.01±15.07a    |
| 16   | 0.22±0.04a    | 0.37±0.02b  | 0.92±0.05b      | 0.59±0.05ab  | 8.20±0.58ab | 0.65±0.03a             | 4.65±0.52a | 194.77±1.01a | 28.18±1.22a | 26.88±2.01a     | 4.00±0.35c    | 0.47±0.06e    | 0.76±0.05a    | 270.66±15.10a    |
| 20°C |               |             |                 |              |             |                        |            |              |             |                 |               |               |               |                  |
| 0    | 0.25±0.08a    | 0.59±0.07a  | 1.20±0.14a      | 0.72±0.08a   | 10.48±0.68a | 0.35±0.04c             | 5.21±0.54a | 215.69±5.21a | 37.15±2.26a | 24.6±1.52a      | 7.00±0.39a    | 5.10±0.22a    | 0.72±0.05a    | 309.06±11.28a    |
| 2    | 0.25±0.06a    | 0.43±0.02a  | 1.02±0.07ab     | 0.52±0.03bc  | 9.89±1.02a  | 0.35±0.03c             | 5.18±0.66a | 208.24±6.79a | 32.35±1.88a | 27.43±2.55a     | 5.96±0.22ab   | 2.23±0.35b    | 0.52±0.04b    | 294.37±13.72a    |
| 4    | 0.27±0.05a    | 0.47±0.08a  | 1.04±0.06ab     | 0.55±0.05abc | 8.97±0.78a  | 0.46±0.03c             | 5.09±0.61a | 209.82±9.57a | 31.11±2.47a | 26.64±1.79a     | 5.50±0.34bc   | 0.96±0.15c    | 0.81±0.07a    | 291.69±16.05a    |
| 6    | 0.25±0.03a    | 0.43±0.05a  | 0.91±0.04b      | 0.38±0.02c   | 8.57±0.74a  | 0.68±0.05b             | 4.63±0.52a | 206.82±8.99a | 32.31±3.88a | 26.74±2.06a     | 5.25±0.48bc   | 0.78±0.04cd   | 0.45±0.06b    | 288.20±16.92a    |

|      |            |                  |                 |                  |                 |                 |                |                   |                   |              |                  |                 |                 |                   |
|------|------------|------------------|-----------------|------------------|-----------------|-----------------|----------------|-------------------|-------------------|--------------|------------------|-----------------|-----------------|-------------------|
| 8    | 0.26±0.03a | 0.41±0.05a       | 0.96±0.0<br>8ab | 0.45±0.0<br>6bc  | 7.98±0.4<br>9a  | 0.67±0.05b      | 4.75±0.3<br>9a | 202.57±8<br>.79a  | 30.52±2.57<br>a   | 26.23±2.11a  | 5.17±0.3<br>9bc  | 0.57±0.0<br>3cd | 0.76±0.0<br>5a  | 281.30±15.<br>09a |
| 12   | 0.23±0.02a | 0.44±0.02a       | 0.90±0.0<br>5b  | 0.46±0.0<br>4bc  | 8.37±0.5<br>5a  | 0.63±0.06b      | 4.88±0.6<br>1a | 198.99±1<br>0.23a | 28.65±2.44<br>a   | 25.91±1.85a  | 4.42±0.2<br>7c   | 0.36±0.0<br>2d  | 0.89±0.0<br>2b  | 275.13±16.<br>18a |
| 16   | 0.26±0.04a | 0.41±0.03a       | 0.91±0.0<br>3b  | 0.63±0.0<br>5ab  | 8.1±0.64<br>a   | 0.85±0.04a      | 4.66±0.4<br>7a | 197.52±7<br>.59a  | 28.55±1.89<br>a   | 24.87±2.03a  | 4.33±0.3<br>1c   | 0.35±0.0<br>2d  | 0.90±0.0<br>7b  | 272.34±13.<br>21a |
| 30°C |            |                  |                 |                  |                 |                 |                |                   |                   |              |                  |                 |                 |                   |
| 0    | 0.25±0.08a | 0.59±0.07a       | 1.20±0.1<br>4a  | 0.72±0.0<br>8ab  | 10.48±0.<br>68a | 0.35±0.04c      | 5.21±0.5<br>4a | 215.69±5<br>.21a  | 37.15±2.26<br>a   | 24.6±1.52b   | 7.00±0.3<br>9a   | 5.10±0.2<br>2a  | 0.72±0.0<br>5ab | 309.06±11.<br>28a |
| 2    | 0.30±0.04a | 0.51±0.05a<br>b  | 1.09±0.0<br>8a  | 0.54±0.0<br>5bc  | 10.00±0.<br>79a | 0.41±0.02b<br>c | 5.12±0.6<br>2a | 216.07±8<br>.78a  | 31.55±3.25<br>abc | 27.76±1.57ab | 5.70±0.6<br>6ab  | 1.98±0.1<br>4b  | 0.79±0.0<br>6ab | 301.82±16.<br>11a |
| 4    | 0.28±0.03a | 0.50±0.03a<br>b  | 1.02±0.0<br>8a  | 0.57±0.0<br>4abc | 9.29±0.8<br>6a  | 0.56±0.04a<br>b | 4.82±0.3<br>9a | 210.43±9<br>.58a  | 32.62±2.74<br>bc  | 26.10±2.14b  | 5.34±0.3<br>5bc  | 0.79±0.0<br>8c  | 0.81±0.0<br>5a  | 293.13±16.<br>41a |
| 6    | 0.21±0.01a | 0.48±0.06a<br>b  | 1.09±0.0<br>9a  | 0.62±0.0<br>4abc | 8.56±0.4<br>7a  | 0.57±0.04a      | 5.02±0.3<br>4a | 202.76±8<br>.36a  | 25.47±2.78<br>bcd | 31.58±1.88ab | 4.63±0.2<br>8bcd | 0.66±0.0<br>5cd | 0.85±0.0<br>6a  | 282.50±14.<br>46a |
| 8    | 0.23±0.02a | 0.43±0.05a<br>b  | 0.98±0.0<br>6a  | 0.53±0.0<br>2c   | 8.72±0.8<br>4a  | 0.56±0.05a<br>b | 4.78±0.6<br>3a | 197.65±9<br>.25a  | 23.03±1.58<br>cd  | 31.89±2.06ab | 4.26±0.3<br>9cd  | 0.62±0.0<br>4cd | 0.82±0.0<br>4a  | 274.50±15.<br>03a |
| 12   | 0.22±0.06a | 0.42±0.06a<br>b  | 0.98±0.0<br>4a  | 0.64±0.0<br>7abc | 8.71±0.3<br>9a  | 0.63±0.07a      | 4.83±0.4<br>4a | 198.56±6<br>.99a  | 21.85±2.66<br>d   | 34.90±2.98a  | 3.94±0.3<br>3cd  | 0.39±0.0<br>5d  | 0.61±0.0<br>7b  | 276.68±14.<br>21a |
| 16   | 0.20±0.04a | 0.38±0.02b       | 0.96±0.0<br>5a  | 0.75±0.0<br>4a   | 8.36±0.4<br>8a  | 0.59±0.04a      | 4.63±0.5<br>0a | 196.59±7<br>.88a  | 20.16±1.97<br>d   | 35.63±3.58a  | 3.80±0.2<br>5d   | 0.36±0.0<br>2d  | 0.81±0.0<br>4a  | 273.22±14.<br>91a |
| 40°C |            |                  |                 |                  |                 |                 |                |                   |                   |              |                  |                 |                 |                   |
| 0    | 0.25±0.08a | 0.59±0.07a       | 1.2±0.14<br>a   | 0.72±0.0<br>8a   | 10.48±0.<br>68a | 0.35±0.04c      | 5.21±0.5<br>4a | 215.69±5<br>.21a  | 37.15±2.26<br>a   | 24.6±1.52a   | 7.00±0.3<br>9a   | 5.10±0.2<br>2a  | 0.72±0.0<br>5a  | 309.06±11.<br>28a |
| 2    | 0.24±0.03a | 0.49±0.05a<br>b  | 1.19±0.1<br>1a  | 0.70±0.0<br>4a   | 10.26±0.<br>77a | 0.52±0.04b<br>c | 5.18±0.5<br>5a | 212.09±1<br>0.02a | 30.62±3.01<br>a   | 28.02±1.77ab | 5.92±0.2<br>2b   | 1.25±0.1<br>1b  | 0.85±0.0<br>8a  | 297.33±16.<br>80a |
| 4    | 0.17±0.02a | 0.45±0.05a<br>bc | 1.06±0.0<br>9a  | 0.79±0.0<br>5a   | 9.97±0.5<br>7a  | 0.65±0.05a<br>b | 4.99±0.5<br>4a | 210.79±1<br>0.35a | 30.75±2.88<br>a   | 27.16±3.06ab | 5.75±0.3<br>6b   | 0.89±0.0<br>6c  | 0.91±0.0<br>6a  | 294.33±18.<br>14a |

|    |            |                 |                |                |                |                 |                |                  |                  |              |                 |                 |                |                   |
|----|------------|-----------------|----------------|----------------|----------------|-----------------|----------------|------------------|------------------|--------------|-----------------|-----------------|----------------|-------------------|
| 6  | 0.20±0.02a | 0.39±0.02b<br>c | 0.98±0.0<br>8a | 0.77±0.0<br>5a | 9.17±0.5<br>9a | 0.64±0.05a<br>b | 4.72±0.6<br>7a | 205.98±9<br>.84a | 29.68±3.01<br>a  | 29.00±2.15ab | 4.60±0.3<br>3c  | 0.66±0.0<br>5cd | 0.80±0.0<br>5a | 287.59±16.<br>91a |
| 8  | 0.18±0.04a | 0.35±0.04b<br>c | 0.95±0.0<br>6a | 0.84±0.0<br>7a | 9.07±0.4<br>5a | 0.76±0.05a      | 4.95±0.3<br>5a | 208.55±7<br>.94a | 29.23±2.26<br>ab | 28.82±1.87ab | 4.11±0.3<br>2cd | 0.37±0.0<br>1de | 0.85±0.0<br>4a | 289.03±13.<br>50a |
| 12 | 0.20±0.02a | 0.32±0.03c      | 0.93±0.0<br>5a | 0.89±0.0<br>9a | 9.21±0.5<br>4a | 0.73±0.08a      | 4.89±0.4<br>4a | 207.73±9<br>.33a | 28.68±3.55<br>ab | 31.58±3.02ab | 3.49±0.2<br>6d  | 0.31±0.0<br>2e  | 0.75±0.0<br>6a | 289.71±17.<br>49a |
| 16 | 0.21±0.02a | 0.35±0.02b<br>c | 0.95±0.0<br>7a | 0.84±0.0<br>5a | 8.73±0.9<br>4a | 0.65±0.05a<br>b | 4.98±0.3<br>7a | 201.56±9<br>.55a | 19.84±2.05<br>b  | 34.99±4.01b  | 3.48±0.1<br>9d  | 0.27±0.0<br>2e  | 0.72±0.0<br>5a | 277.57±17.<br>39a |

Values are expressed as mean ± SD, n= 3. Values followed by different letters in the same line are significantly different (p < 0.05).

ester group 1, belonged to  $\beta$ -cryptoxanthin esters, including peaks 13, 14, 16, 17, 20, according to Fig. 1.

ester group 2, belonged to epoxy carotenoids esters, including peaks 4, 5, 7, 8, 11, 12, 15, 18, 21, 22, according to Fig. 1.

ester group 3, the unknown ester, peak 10.

cis- phytofluene, including peaks 26, 27 and 29, according to Fig. 1.

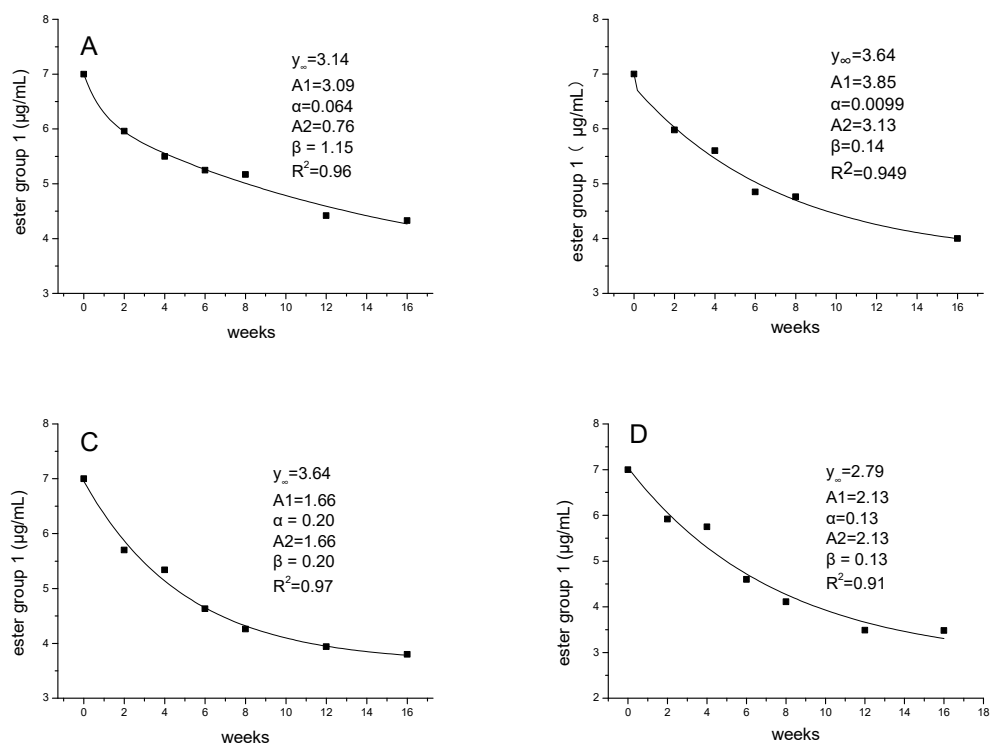


Figure S1. Biexponential fitting with eq 1 of the experimental data obtained for the degradation of ester group 1 in Cara Cara juice during 16 weeks storage at 4°C (A), 20°C (B), 30°C (C) and 40°C (D), respectively.

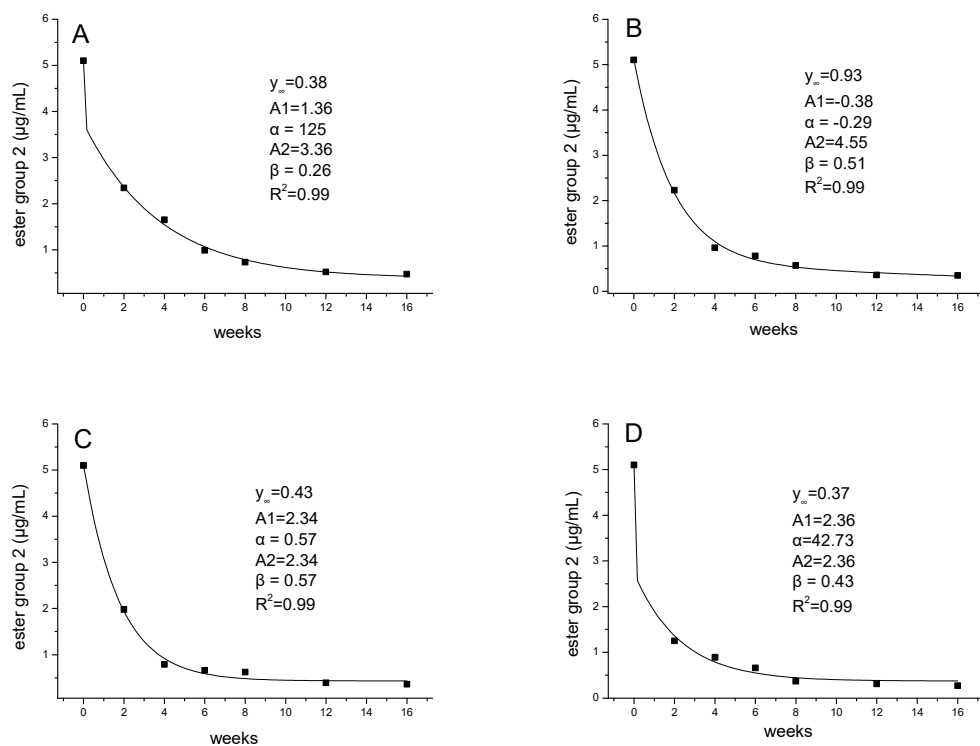


Figure S2. Biexponential fitting with eq 1 of the experimental data obtained for the degradation of ester group 2 in Cara Cara juice during 16 weeks storage at 4°C (A), 20°C (B), 30°C (C) and 40°C (D), respectively.