Dataset on the change of postharvest quality of Physalis peruviana L. as an effect of ethylene inhibitor

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1. Data

Data were represented the postharvest fruit quality of P. peruviana L. as an effect of various 1-MCP concentrations and exposure durations. Several parameter related to the postharvest quality, namely fruit shelf life, total soluble solid (TSS), fruit firmness, fruit pH and titratable acidity (TA) were analyzed. Table 1 presented data on fruit shelf life as the effect of concentration and duration of 1-MCP. Table 2 presented data on fruit firmness. Table 3 presented data on TSS. Table 4 presented data on fruit pH. Table 5 presented data on fruit TA.

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2. Experimental design, materials, and methods

2.1. Fruit preparation

The sample of *P. peruviana* L. fruits were obtained and harvested from Waida Farm in Sumedang, West Java, Indonesia. Similar fruit maturation at mature green (MG) fruits were chosen to be harvested according Baumann and Meier [3] and Trinchero et al. [4] with the criteria of yellowish green berry in color with greenish to pale yellow calyx and harvested from the same plant. Harvested fruit was kept at ambiance temperature (23 ± 4 °C) and 80% of humidity for postharvest quality analysis. The experiment consisted of nine treatments: (combination from three of concentrations and three exposure duration application) and control repeated third times.

2.2. Fruit shelf life

The shelf life is one the important fruit character for *P. peruviana* L. fruit. It was counted from the initial day of storage when the fruit was still yellowish green berry in color with greenish to pale yellow calyx and harvested from the same plant. Harvested fruit was kept at ambiance temperature (23 ± 4 °C) and 80% of humidity for postharvest quality analysis. The experiment consisted of nine treatments: (combination from three of concentrations and three exposure duration application) and three control replicates.

### Table 1

| Treatments | Fruit Shelf Life (Days) |
|------------|-------------------------|
| Control    | 17.0<sup>a</sup>        |
| 0.5 μL L<sup>−1</sup>, 6 h | 21.3<sup>e</sup>        |
| 0.5 μL L<sup>−1</sup>, 12 h | 21.7<sup>c</sup>       |
| 0.5 μL L<sup>−1</sup>, 24 h | 20.7<sup>b</sup>       |
| 1.0 μL L<sup>−1</sup>, 6 h | 21.7<sup>c</sup>       |
| 1.0 μL L<sup>−1</sup>, 12 h | 21.0<sup>c</sup>       |
| 1.0 μL L<sup>−1</sup>, 24 h | 20.0<sup>c</sup>       |
| 2.0 μL L<sup>−1</sup>, 6 h | 20.0<sup>c</sup>       |
| 2.0 μL L<sup>−1</sup>, 12 h | 20.3<sup>b</sup>       |
| 2.0 μL L<sup>−1</sup>, 24 h | 20.7<sup>b</sup>       |

Note: No significant differences are detected in mean value followed by same alphabetic annotation according to Duncan’s Multiple Range Test (DMRT) at p < 0.05.
calyx, up until quality lost characteristics were detected such as yellowish orange in color and flesh softens [3].

2.3. Fruit firmness

Fruit firmness was assayed in accordance to Mubarok et al. [5]. Briefly, four fruits in each replication were penetrated on two opposite side of the equatorial axes of fruit using a hand penetrometer of

| Treatments          | Fruit Firmness (kgf) |
|---------------------|----------------------|
|                     | 0 DAS | 7 DAS | 14 DAS | 21 DAS |
| Control             | 4.33a | 3.52a | 3.10a  | 2.73a  |
| 0.5 μL L⁻¹, 6 h     | 4.39a | 4.20d | 3.44bc | 3.22cd |
| 0.5 μL L⁻¹, 12 h    | 4.69a | 3.75ab| 3.43bc | 3.37d  |
| 0.5 μL L⁻¹, 24 h    | 4.36a | 4.17cd| 3.29ab | 3.06bc |
| 1.0 μL L⁻¹, 6 h     | 4.26a | 3.74ab| 3.22ab | 3.18cd |
| 1.0 μL L⁻¹, 12 h    | 5.04a | 3.88bc| 3.65c  | 3.02abc|
| 1.0 μL L⁻¹, 24 h    | 4.82a | 3.68ab| 3.22ab | 2.84ab |
| 2.0 μL L⁻¹, 6 h     | 4.57a | 3.64ab| 3.30ab | 2.87ab |
| 2.0 μL L⁻¹, 12 h    | 4.85a | 3.78ab| 3.33ab | 2.98abc|
| 2.0 μL L⁻¹, 24 h    | 4.96a | 3.74ab| 3.33ab | 3.08bc |

Note: No significant differences at the same storage time are detected in mean value followed by same alphabetic annotation according to Duncan's Multiple Range Test (DMRT) at p < 0.05. DAS = days after storage.

| Treatments          | Fruit Firmness    |
|---------------------|-------------------|
|                     | TSS (°Brix)       |
|                     | 0 DAS | 7 DAS | 14 DAS | 21 DAS |
| Control             | 14.10a | 15.07cd| 15.60d | 14.93b |
| 0.5 μL L⁻¹, 6 h     | 14.20a | 14.60a | 15.13a | 15.50bc |
| 0.5 μL L⁻¹, 12 h    | 14.00a | 14.70ab| 15.17a | 15.50bc |
| 0.5 μL L⁻¹, 24 h    | 13.60a | 14.87bc| 15.23a | 14.77b |
| 1.0 μL L⁻¹, 6 h     | 12.60a | 15.00cd| 15.33bc| 15.27cd|
| 1.0 μL L⁻¹, 12 h    | 14.20a | 15.07cd| 15.30bc| 15.17c |
| 1.0 μL L⁻¹, 24 h    | 14.10a | 15.03cd| 15.27ab| 14.53a |
| 2.0 μL L⁻¹, 6 h     | 14.10a | 15.30d | 15.47cd| 14.90b |
| 2.0 μL L⁻¹, 12 h    | 14.20a | 15.23d | 15.47cd| 15.43de|
| 2.0 μL L⁻¹, 24 h    | 14.00a | 15.00cd| 15.50cd| 15.53e |

Note: No significant differences at the same storage time are detected in mean value followed by same alphabetic annotation according to Duncan's Multiple Range Test (DMRT) at p < 0.05. DAS = days after storage.

| Treatments          | Fruit pH          |
|---------------------|-------------------|
|                     | 0 DAS | 7 DAS | 14 DAS | 21 DAS |
| Control             | 5.1a  | 5.17a | 5.30a  | 5.67a  |
| 0.5 μL L⁻¹, 6 h     | 5.1a  | 5.13a | 5.17a  | 5.47a  |
| 0.5 μL L⁻¹, 12 h    | 5.1a  | 5.10a | 5.13a  | 5.37a  |
| 0.5 μL L⁻¹, 24 h    | 5.0a  | 5.03a | 5.20a  | 5.57a  |
| 1.0 μL L⁻¹, 6 h     | 5.2a  | 5.27a | 5.30a  | 5.40a  |
| 1.0 μL L⁻¹, 12 h    | 5.2a  | 5.20a | 5.30a  | 5.60a  |
| 1.0 μL L⁻¹, 24 h    | 5.1a  | 5.13a | 5.23a  | 5.57a  |
| 2.0 μL L⁻¹, 6 h     | 5.2a  | 5.23a | 5.27a  | 5.43a  |
| 2.0 μL L⁻¹, 12 h    | 5.2a  | 5.30a | 5.37a  | 5.60a  |
| 2.0 μL L⁻¹, 24 h    | 5.1a  | 5.17a | 5.27a  | 5.67a  |

Note: No significant differences at the same storage time are detected in mean value followed by same alphabetic annotation according to Duncan's Multiple Range Test (DMRT) at p < 0.05. DAS = days after storage.
Ultrasonic Hardness Tester (Nippon Optical Works, Tokyo, Japan). Fruit firmness was measured for 7 until 21 days after storage (DAS).

2.4. Total soluble solid (TSS)

Sugar content were estimated by the value of TSS. TSS was measured every 7 days until 21 DAS based on method described in Mubarok et al. [5]. Briefly, P. peruviana L. fruit were blended and centrifugated for 10 mins at 13,000 × g. Obtained supernatant were used to determine TSS by using PAL-J refractometer (Atago, Tokyo, Japan).

2.5. Fruit TA and pH

The TA and pH were measured every 7 days until 21 DAS according to methods described by Garner et al. [6] and Dalal et al. [7] with modification. pH meter (Mettler-Toledo AG, Schwerzenbach, Switzerland) was used to determine pH value from fruit juice. For TA analysis, briefly, 10 g of fresh fruit were homogenized by 100 mL distilled water and centrifugated for 10 mins at 13,000 × g. The supernatant was titrated with NaOH 0.1 N until pH reached 8.1. TA was represented as percentage of citric acid and calculated with the following equations:

\[
\% \text{TA} = \left( \frac{V_{\text{NaOH}} \times N_{\text{NaOH}} \times 0.064 \times 100}{V_{\text{sample}}} \right)\]

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**Transparency document**

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