

Luffa

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Specific Name and Introduction: There are two main species of cultivated luffa (loofah): angled luffa or Chinese okra (*Luffa acutangula*), a green, immature fruit with longitudinal ridges consumed like Summer squash; and smooth luffa or sponge gourd (*Luffa aegyptiaca* Mill). It is sometimes eaten as a vegetable, but mature fruit are mainly used to make sponges for cosmetics and cleaning (Ellington and Wehner, 1996). Both are members of the Cucurbitaceae family.

Quality Characteristics and Criteria: Edible fruit are harvested at an immature stage. If angled luffa are left to mature, there is blossom-end enlargement, stem-end shrinkage and bitter flavor development (Zong et al., 1993). Quality loss is most often associated with loss of green color.

Grades, Sizes and Packaging: There are no U.S. Grades for luffa.

Horticultural Maturity Indices: They are harvested immature and selected based on size.

Optimum Storage Conditions: Angled luffa can be stored for up to 2 weeks at 10 to 12 °C (50 to 54 °F) with 90 to 95% RH (Zong et al., 1992, 1993; Cantwell, 1997).

Controlled Atmosphere (CA) Considerations: There is no published information.

Retail Outlet Display Considerations: Top icing is not acceptable due to their chilling sensitivity. Water sprays are acceptable.

Chilling Sensitivity: Fruit are sensitive to chilling at < 10 °C (50 °F) (Zong et al., 1993). Symptoms include skin discoloration, watery lesions under the skin, and enhanced decay.

Ethylene Production and Sensitivity: Angled luffa produce very low levels of ethylene at < 0.1 $\mu\text{L kg}^{-1} \text{h}^{-1}$ at 20 °C (68 °F). However, it is sensitive to ethylene during postharvest handling, which results in a loss of green color and reduced quality (Zong et al., 1993).

Respiration Rates:

Temperature	mg CO ₂ kg ⁻¹ h ⁻¹
0 °C	14
5 °C	27
10 °C	36
15 °C	63
20 °C	79

To get mL kg⁻¹ h⁻¹, divide the mg kg⁻¹ h⁻¹ rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply mg kg⁻¹ h⁻¹ by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day. Data are from Zong et al. (1992, 1993).

Physiological Disorders: Luffas should be handled with care; damage to longitudinal ribs leads to water loss and decay. Fruit are susceptible to dehydration and toughening of the peel.

Postharvest Pathology: No specific information.

Quarantine Issues: None known.

Suitability as Fresh-cut Product: No current potential.

Special Considerations: Care must be taken with selection of the correct immature stage; damage to the ribs must be carefully controlled as it leads to water loss and decay.

References:

- Cantwell, M. 1997. Properties and recommended conditions for storage of fresh fruits and vegetables at http://postharvest.ucdavis.edu/produce/storage/sci_dl.
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- Zong, R., M.I. Cantwell and L.L. Morris. 1993. Postharvest handling of Asian specialty vegetables under study. Calif. Agric. 47(2):27-29.
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