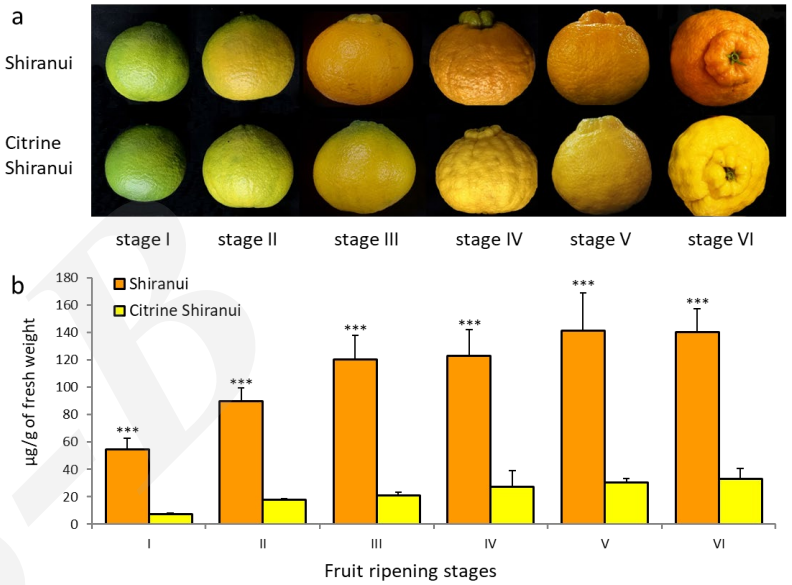
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Carotenoid components and their biosynthesis in a bud mutant of Shiranui mandarin (*Citrus reticulata* Blanco) with citrine flavedo

Key words: Citrine Shiranui, flavedo pigment, HPLC, carotenoid proportion, gene transcript level

Research Summary

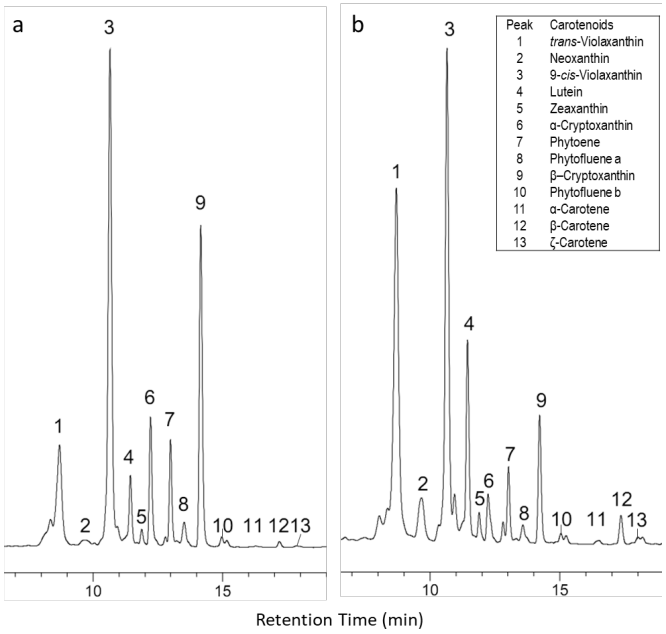


Citrine Shiranui (also named ‘Jinlegan’) is a spontaneous bud mutation of Shiranui mandarin (*Citrus reticulata* Blanco) found in Southwest China.

- Citrine Shiranui brighter color (citrine/yellow) flavedo of mature fruit. Shiranui has the normal orange color.

- The differences in total carotenoid contents were considered to be the primary cause of the difference in flavedo color.

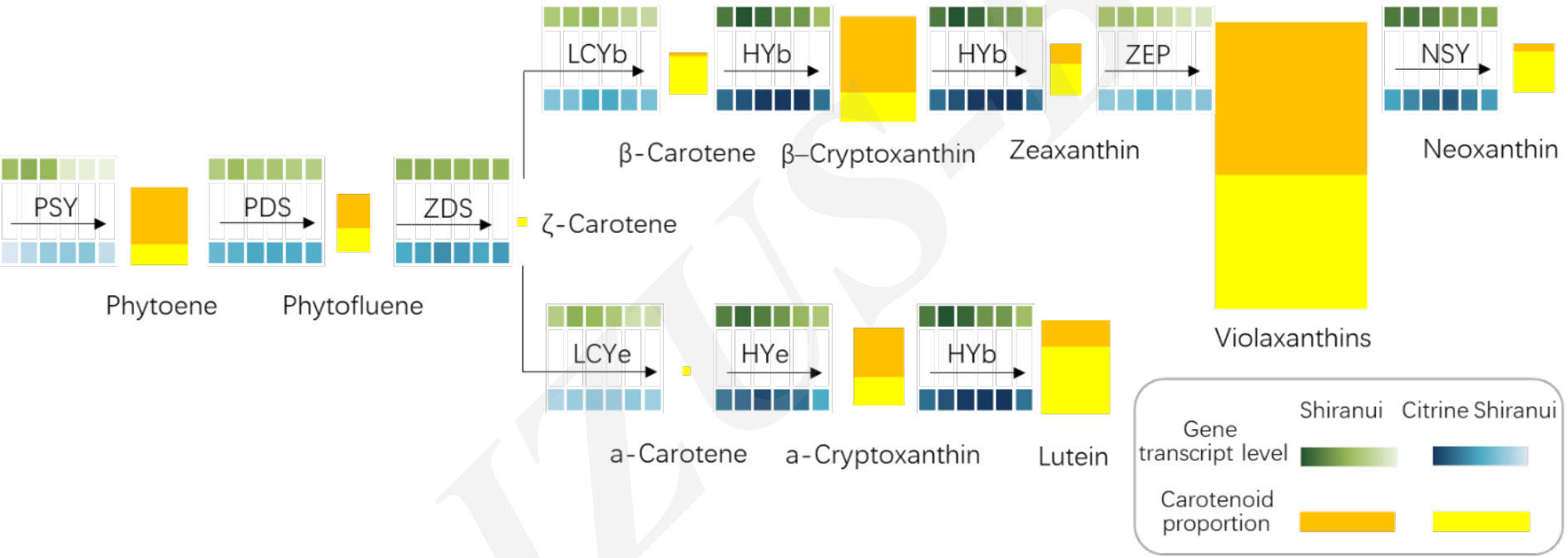
- Twelve prevalent components of the carotenoid biosynthesis pathway were identified in the flavedo of Shiranui and Citrine Shiranui



Lower β-cryptoxanthin (a carotenoid associated with an orange color)

Higher proportions of lutein and neoxanthin (associated with a green-yellow color)

the additional factors contributing to the brighter color flavedo of Citrine Shiranui



- The *HYb* gene was more highly expressed in both cultivars→
  In accord with its multiple hydroxylation functions.
- The higher transcript levels of *PSY* in the early stages of fruit ripening in the flavedo of Shiranui→
  Provide abundant substrate to sustain higher total carotenoid content.
- The low transcript levels of *ZEP*→
  probably imply potential negative feedback regulation.

JZUSB