

**Title** Inhibitory effect of sucrose laurate ester on degreening in Citrus nagato-yuzukichi fruit during storage

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#### **Abstract**

An inhibitory effect of sucrose laurate ester (SLE) on the degreening of Nagato-yuzukichi (*Citrus nagato-yuzukichi* hort. ex Y. Tanaka) fruit was determined. SLE treatment suppressed the degreening of the fruit during storage at 20 °C more efficiently than the treatment with any other sucrose fatty acid ester, such as myristate, palmitate or stearate. SLE itself did not have an inhibitory effect on chlorophyllase and chlorophyll (Chl)-degrading peroxidase activities, but laurate, which was de-esterified from SLE, had a significant effect. Laurate inhibited both enzyme activities more effectively than any other fatty acid, such as caprylate, caprate, myristate, palmitate or stearate. The fruit flavedo extract had an activity to decompose SLE to laurate and sucrose, and treatment of the fruit with laurate significantly suppressed degreening during storage at 20 °C as well. These results indicate that the suppression of degreening in SLE-treated Nagato-yuzukichi fruit could be in part due to the formation of laurate from SLE by an esterase, such as a lipase, which is present in the flavedo, and the laurate formed might be involved effectively in the inhibition of Chl-degrading enzyme activities. Moreover, the suppression of degreening by SLE treatment could be due to the inhibition of degreening by laurate in addition to the coating effect of SLE.