

# Preharvest bagging and postharvest calcium treatment affects superficial scald incidence and calcium nutrition during storage of ‘Chili’ pear (*Pyrus bretschneideri*) fruit

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## Abstract

Superficial scald, which appears as black or brown necrotic patches on the skin, is a serious postharvest physiological disorder of pear fruit. The occurrence of scald in ‘Chili’ pear (*Pyrus bretschneideri*) fruit during storage at 2 °C in response to preharvest polyethylene (PE) bagging and non-woven fabric bagging has been investigated. The non-woven fabric bagging treatment of fruit prevented scald development, while the PE bagged fruit had a higher incidence of scald than the untreated fruit. Fruit from the PE bagging treatment had lower Ca content, less distribution and lower flux rate of Ca<sup>2+</sup> than no bagging and non-woven fabric bagging fruit. The treatment also was associated with greater expression of genes encoding calmodulin-like (CML) proteins, such as *PbCML19*, *PbCML5*, *PbCML38*, *PbCML42-1*, and *PbCML42-2*. In contrast, non-woven fabric bagging did not affect the expression of these genes in the fruit. In addition, CaCl<sub>2</sub> treatment reduced scald development in PE bagged pear fruit during storage. Our results suggest that Ca<sup>2+</sup> may play a role in regulating the occurrence of superficial scald in pear fruit.