

# Transcriptome analysis reveals a regulation of ethylene-induced post-harvest senescence in pear fruit

Huan-Yu Xu, Yang-Yang Chen, Li-Bin Wang, Zhi-Hua Xie, Chao Gu and Shao-Ling Zhang

Scientia Horticulturae 240: 585-591. (2018)

---

## Abstract

Fruit senescence is induced by ethylene in pear, but it is unclear which ethylene responsive factor(s) is involved in. In this study, the ripening fruits of cv. Housui were respectively treated by ethephon and 1-MCP, and the treated fruits were used for transcriptome sequencing to reveal the genes associated with ethylene-induced senescence. As expected, ethylene biosynthesis and signal pathway genes were detected and had remarkably higher levels of expression in all the pre-decayed fruits than in the ripening fruits, but only one novel *ERF* gene (*Pbr022708.1*) was induced by ethylene in post-harvested fruits during storage. Moreover, based on the changes of fruit firmness, two ethylene-induced genes that individually encode polygalacturonase (*Pbr010853.1*) and xyloglucan endotransglucosylase/hydrolase (*Pbr040203.1*) were isolated to be associated with fruit softening during post-harvest storage. In addition, auxin signal and stress tolerance were likely involved into fruit senescence. These results will be available for understanding gene regulation of post-harvested fruits during storage.