

Title Changes in dietary fibre, polygalacturonase, cellulase of navel orange (*Citrus sinensis* (L.) Osbeck 'Cara Cara') fruits under different storage conditions

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Abstract

The consumption of dietary fibre plays an important role in the prevention of diseases, such as constipation, haemorrhoids. Recently, chemical and physical properties of citrus fibres have been widely studied. In this paper, the polygalacturonase (PG) and cellulase (Cx) gene expression of Cara Cara (*Citrus sinensis* (L.) Osbeck) navel orange fruit stored on tree (ST) was compared with fruit stored in room (SR). The results showed that the mRNA expression levels of PG increased significantly in the fruits of ST, in contrast, the expression levels of Cx increased slightly only in peel of ST. Total pectin (TP) and protopectin of ST fruits pulp were higher than those of SR at every time point. The contents of insoluble dietary fibre (IDF), hemicellulose (HC), cellulose (CEL) and lignin of ST fruits were less than that in SR. However, in fruits from ST, a significant increase of soluble dietary fibre (SDF) and water soluble pectin (WSP) occurred, compared with fruits of SR. Our studies indicated that fruit stored on tree is quite useful for regulating the gene expression and controlling contents of dietary fibre on Cara Cara navel orange.