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Influence of growing location , harvesting season and post-harvest storage time on Carotenoid biosynthesis in orange sweet potato (Ipomoea batatas) tuber flesh (Article)

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Abstract

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Carotenoid content in plants differs due to several factors such as cultivar, maturity, climate, locality and storage . Improving the nutritional values of sweet potato is an important breeding goal and understanding the regulation, genetics and inheritance of carotenoid biosynthesis are vital to achieve this. Environmental conditions can have a marked influence on the accumulation of carotenoids in sweet potato tubers. Little is known about the effects of location , post-harvest storage time and harvesting season particularly on carotenoid biosynthesis . Therefore, this study aimed to investigate the effects of growing location , harvesting season and storage time on carotenoid biosynthesis in orange sweet potato tuber flesh . The results showed that orange sweet potato tubers contained α -carotene and β -carotene in the first and second harvesting season (year 2011 and 2012), whereas lutein and zeaxanthin were detected only in the third harvesting season (year 2013). Analysis of carotenoid profiles of the orange sweet potato tubers grown in three different locations confirmed that the harvesting season had a major effect on the total carotenoid content and the individual carotenoid compounds. The post-harvest storage time of sweet potato tubers also appears to have distinct effects on carotenoid biosynthesis , the magnitude of the effects being dependent on the storage time , harvesting season and location . The results of this study will help to understand the effects of location , year of harvesting season and storage time on carotenoid accumulation in orange sweet potato tubers. © All Rights Reserved.

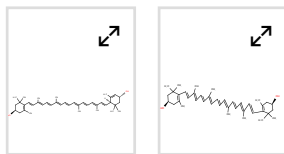
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Topic: Carotenoids | Vitamin A | Carotenoid bioaccessibility

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Substances



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