

Brassinosteroid plays a role on pink stage for receptor and transcription factors involved in strawberry fruit ripening

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Original paper

First Online: [03 October 2017](#)

Abstract

In contrast to climacteric fruits, the ripening regulation of non-climacteric fruits is not well understood. Strawberry is a representative example of this kind of fruit, so it has been used as a model system for this category. In this study, the effect of exogenous brassinosteroid (BR) on the expression of the receptor (*FaBR11*) and two components of the signaling pathway (*FaBIN2* and *FaBRZ1*) was analyzed in *Fragaria* × *ananassa* cultivar Camino Real by quantitative real-time polymerase chain reaction (RT-qPCR). The physicochemical and phytochemical characteristics of fruits were evaluated in the field and postharvest trials. Perception and signal transduction pathway show little gene action mainly when elicited by epibrassinolide, having treatment differences due mainly the pink stage. This leads us to suggest that BR

is involved in strawberry fruit ripening, where the threshold to action seems to be very low and act in the pink stage according to perception and transduction signals. However, owing to the physicochemical and phytochemical characteristics, the BR influence mainly starts in the white stage for total sugar and soluble solid in field assay and for total sugar in the postharvest assays. In addition, there is a positive effect on vitamin C content and total anthocyanins for the treated red fruits in the postharvest assay. All results show that BR is involved in strawberry fruit ripening, in different stages, mainly in a phenylpropanoid pathway. However, new assays to confirm the real BR importance on strawberry maturation and fruit quality.

Keywords

Rosaceae Non-climacteric fruit Epibrassinolide RT-qPCR *Fragaria* × *ananassa*