Decision Letter (apr0782.R3)

From: timothy.tranbarger@ird.fr

To: nrudsc@gmail.com

CC: aprs@wiley.com, timothy.tranbarger@ird.fr

Subject: Article: Editor decision on apr0782.R3

Body: Dear Dr. Ramchiary,

It is a pleasure to accept your revised manuscript entitled "Genetic, Epigenetic and Hormonal Control of Fruit Development and Ripening in Capsicum L. Species" in its current form for publication in the Article. Any further comments from me are included at the foot of this email.

Please note that although the manuscript is accepted the files will now be checked to ensure that everything is ready for publication, and you may be contacted if final versions of files for publication are required. This article will be copyedited and typeset, and you will be sent PDF proofs for checking in due course.

If you have not done so already, please your signed Copyright Transfer Agreement to the Editorial Office (APRS@wiley.com), which should have been sent to you some time ago. If you cannot find a copy of the document, please request it from APRS@wiley.com.

Thank you for your contribution to the Article.

Kind regards,

Timothy John Tranbarger
Editor, Article

Editor comments:

Associate Editor: Tranbarger, Timothy John
Comments to the Author:
Thank you very much for your submission and collaboration. Your manuscript will make an excellent contribution to APRo.

Date Sent: 09-Dec-2020

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WILEY ANNUAL PLANT REVIEWS ONLINE

Genetic, Epigenetic and Hormonal Control of Fruit Development and Ripening in *Capsicum* L. Species

Journal:	*Annual Plant Reviews*
Manuscript ID	apr0782.R2
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Keywords:	Capsicum, fruit development, fruit ripening, bell pepper, epigenetics, miRNA, non coding RNAs, long non coding RNA, Post Translational Histone Modifications, DNA methylation
Abstract:	Abstract Fruits are not only important for the plants but also for ensuring sustainable food security of the burgeoning global population. Considering the huge nutritional and ecological importance of fruits, investigation of mechanisms and factors governing their development and ripening is crucial. The investigation of fruit development in several economically important crops such as tomato, strawberry, grape and banana including *Capsicum* suggest that early fruit development is largely dependent on auxins and gibberellins (GAs) whereas later ripening is dependent on ethylene or abscisic acid (ABA). The initial development is relatively conserved whereas the ripening of fruits can be either climacteric or non-climacteric depending on the presence or absence of respiratory burst and ethylene production respectively. Climacteric fruit ripening is mediated by ethylene and it is well studied in tomato and banana, whereas non-climacteric fruit ripening requires ABA and much of the information on it comes from strawberry and grape. The genus *Capsicum* L. shows rich diversity in fruit traits such as shape, colour, size and even in its ripening behaviour. Early fruit development in different species of *Capsicum* appears similar to other fruit crops, whereas later fruit ripening behaviour in different species of *Capsicum* can be either climacteric or non-climacteric depending upon evolution of ethylene and respiratory burst. It has been found that, even different cultivars of the same species of *Capsicum* show variation in ripening behaviour suggesting interspecific and intraspecific complexities in fruit ripening responses. Until a few years, a majority of the papers have focussed on the non-climacteric nature of fruit ripening in *Capsicum*.

	However recent studies have shown substantial involvement of ethylene and ethylene related genes in fruit ripening of *Capsicum* suggesting the existence of extensive common regulons between climacteric and non-climacteric fruits. Recent studies have also suggested the involvement of several epigenetic mechanisms such as non-coding RNAs (ncRNAs) and cytosine methylation in regulating fruit development and ripening. With the advent of new tools in the omics field such as genomics, transcriptomics, metabolomics and epigenomics, there is considerable progress in understanding the fruit development and complex nature of ripening in *Capsicum*. Nevertheless, consolidated information on *Capsicum* fruit development and its complex nature of ripening is not available. In this review, an attempt is made to present up to date consolidated information on the development and ripening of *Capsicum* fruit with an emphasis on its genetic, epigenetic and hormonal regulation. APRO R2 ABSTRACT -.docx