Preharvest Modulation of Postharvest Fruit and Vegetable Quality

Edited by

Mohammed Wasim Siddiqui

CHAPTER 15

Biofortified Vegetables for Improved Postharvest Quality: Special Reference to High-Pigment Tomatoes

Riadh Ilahy*, Mohammed Wasim Siddiqui, Imen Tlili*, Chafik Hdider*, Nouri Khamassy*, Marcello Salvatore Lenucci†**

*National Agricultural Research Institute of Tunisia, Tunis, Tunisia
**Bihar Agricultural University, Sabour, Bhagalpur, Bihar, India
†University of Salento, Lecce, Italy

1 INTRODUCTION

Biofortification is the development of micronutrient-/phytonutrient-rich staple crops using efficient traditional breeding techniques or modern biotechnology tools (Nestel et al., 2006). However, even if in some cases, the use of transgenic approach is crucial, consumer concerns about genetically modified organisms is increasing, which shifts most of the efforts toward the use of naturally biofortified crops. The valorization of naturally biofortified crops is of great importance since the differences with currently and ordinary grown cultivars (cvs) is clearly visible [high-pigment (*hp*) and purple tomatoes, and colored potatoes].

Tomatoes contain a plethora of nutritional and bioactive nonnutritional compounds contributing to the functional and postharvest quality of tomato fruit. Breeding objectives have changed over time with the cvs released and modifications of growing systems. The breeding history has passed through four phases: breeding for yield in the 1970s, for shelf life in the 1980s, for taste in the 1990s, and since then for nutritional value (Bergougnoux, 2014). Although the *hp* and purple tomatoes exemplify the later alternative, they are recently considered also as a starting point for multiple-trait breeding since those mutants exhibit, besides higher functional quality, extended shelf life as compared to ordinary tomato genotypes (Butelli et al., 2008; Siddiqui et al., 2015).

The potato is the fourth most important food crop in the world after rice, wheat, and maize, and is the only major food crop that is a tuber.

Preharvest Modulation of Postharvest Fruit and Vegetable Quality
http://dx.doi.org/10.1016/B978-0-12-809807-3.00015-9