

Biochemical composition as a function of fruit maturity stage of bell pepper (*Capsicum annum*) inoculated with *Bacillus amyloliquefaciens*

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Abstract

The use of growth promoting bacteria in sweet pepper plants (*Capsicum annum*), such as some *Bacillus* strains, has previously been related to increased yields and plant resistance. However, it is also important to evaluate the effect that inoculation has on the ripening process and on the nutritional composition of the fruits. In the present work, the effect of root inoculation of sweet pepper plants with *Bacillus amyloliquefaciens* on the composition of sweet peppers harvested at different stages of maturation is evaluated. It was possible to determine a clear effect of inoculation on the fixation of Ca and Fe, and the content of vitamin C and compounds with antioxidant capacity. Root inoculation with *Bacillus amyloliquefaciens* generated an increase in the concentration of calcium, iron and vitamin C of 561 mg kg⁻¹, 182 mg kg⁻¹ and 561 µg 100 g⁻¹ d.m., respectively in Red II and Green I compared to the control samples. An increase in antioxidant capacity was generated, which is reflected in an increase in the ORAC test of 1618 µmol TE 100 g⁻¹ d.m. and in 587 µmol TE 100 g⁻¹ d.m. for Green I and Red I crops respectively. On the other hand, the effect of the fruit ripening process was significant, especially in relation to the development of natural pigments and phenolic compounds, with high antioxidant potential. An increased of extractable pigments of 57 color units with respect to the control sample in Red II is highlighted, which enhances the organoleptic attractiveness of the fruit. These results would allow producers to determine the time at which to harvest to maximize the nutritional contribution of sweet peppers.