The influence of organic and conventional cultivation systems on the nutritional value and content of bioactive compounds in selected tomato types.

Hallmann E.

Source
WULS-SGGW, Faculty of Human Nutrition and Consumer Sciences, Department of Functional Food and Commodity, Division of Organic Food, Warsaw, Poland. ewelina_hallmann@sggw.pl

Abstract

BACKGROUND:
Tomato fruits contain a high level of antioxidants such as vitamin C, polyphenols (including flavonoids), and carotenoids (such as lycopene and β-carotene). Some studies have shown the higher level of bioactive compounds in organically produced tomato fruits compared to conventional ones, but not all studies were consistent in this respect. The levels of carotenoids and phenolics are very variable and may be affected by ripeness, genotype and cultivation. The aim of the study was to compare the effects of organic and conventional production systems on chemical properties and phenolic compounds of two tomato types (standard and cherry). The experiment was carried out in two growing seasons of 2008 and 2009, and in three organic and three conventional farms.

RESULTS:
The results obtained have shown that, in 2008, organic tomatoes presented a higher ratio of reducing sugars/organic acids, and contained significantly more total sugars, vitamin C and total flavonoids, 3-quercetin rutinoside, and myricetin in comparison with the conventional fruits. In 2009, organic tomatoes contained significantly more vitamin C, quercetin-3-O-glucoside and chlorogenic acid, myricetin and kaempferol in comparison with the conventional fruits.

CONCLUSIONS:
The organic growing system affects tomato quality parameters such as nutritional value and phenolic compound content. The second significant factor of nutritional value of tomato is the type of fruits. It would be necessary to continue this study as a long-term experiment in order to eliminate the influence of seasonality.

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