Effects of organic and conventional growth systems on the content of carotenoids in carrot roots, and on intake and plasma status of carotenoids in humans.

**BACKGROUND:** The demand for organic food products has increased during the last decades due to their probable health effects, among others. A higher content of secondary metabolites such as carotenoids in organic food products has been claimed, though not documented, to contribute to increased health effects of organic foods. The aim was to study the impact of organic and conventional agricultural systems on the content of carotenoids in carrots and human diets. In addition, a human cross-over study was performed, measuring the plasma status of carotenoids in humans consuming diets made from crops from these agricultural systems. **RESULTS:** The content of carotenoids in carrot roots and human diets was not significantly affected by the agricultural production system or year, despite differences in fertilisation strategy and levels. The plasma status of carotenoids increased significantly after consumption of the organic and conventional diets, but no systematic differences between the agricultural production systems were observed. **CONCLUSION:** The expected higher content of presumed health-promoting carotenoids in organic food products was not documented in this study. © 2011 Society of Chemical Industry