

Microalgae as a potential source of carotenoids

A. Gille, K. Briviba

Max Rubner-Institut, Department of Physiology and Biochemistry of Nutrition, Karlsruhe

With regard to the cost-effective cultivation and the composition of high-value nutrients, microalgae awaked high interest for the use in human nutrition. They are rich in carotenoids, and, therefore, in the focus for using microalgae biomass in food products. So far, however, there is only limited information available about the bioavailability of carotenoids when applying whole microalgal cells. Therefore, we aimed to assess *Chlorella vulgaris* as well as *Phaeodactylum tricornutum* as a potential source for carotenoids by applying them in several *in vitro* and *in vivo* studies. The carotenoid profile differs among the microalgae species as well as cultivation conditions. In addition to the carotenoids that already exhibit a nutritional relevance, also the algae-specific fucoxanthin was considered. In line with studies on numerous carotenoid sources, we applied several processing methods to optimize the carotenoid release and consequently also the Bioavailability. Thus, consumption of a microalgae-enriched diet can function as a natural source of carotenoids for food applications. However, the use of processing methods might be necessary to ensure a proper release from the food matrix in the gastrointestinal tract.