Effect of Spinacia oleraceae L. and Perilla frutescens L. on antioxidants and lipid peroxidation in an intervention study in healthy individuals.

Abstract:
Daily consumption of fruits and vegetables is frequently recommended to prevent several diseases. This health-promoting effect is considered to be in part due to the antioxidant content of fruits and vegetables and their ability to decrease oxidative stress. To investigate whether the ingestion of preparations from spinach or perilla, two carotenoid-rich leafy vegetables, is followed by an increase in carotenoid concentration and/or affects parameters of oxidative stress in human blood plasma. 12 healthy volunteers ingested a perilla- or spinach preparation for 10 days (5 mg lutein/d). We quantified antioxidant levels in plasma, kinetics of lipid peroxidation, MDA concentration, and total antioxidative capacity of plasma. We observed a significant increase in lutein content and a moderate increase (n.s.) in beta-carotene content in human blood plasma after consumption of spinach or perilla. The markers of lipid peroxidation tended to decrease, but no influence on antioxidative capacity of plasma could be detected. The high lutein content of perilla caused a more pronounced increase of lutein compared to spinach. Both vegetables seem to be able to influence lipid peroxidation in a beneficial manner.