

?-Cryptoxanthin is more bioavailable in humans from fermented orange juice than from orange juice

Hornero-Méndez D.

Cerrillo I.

Ortega Á.

Rodríguez-Griñolo M.-R.

Escudero-López B.

Martín F.

Fernández-Pachón M.-S.

Carotenoids, especially ?-cryptoxanthin, exert multiple biological activities in the organism. Various processing techniques can improve carotenoid bioavailability in relation to the food matrix. The study objective was to compare the bioavailability of carotenoids from orange juice (OJ) with that from a beverage obtained by alcoholic fermentation of orange juice (FOB). Seven volunteers were recruited for a randomized, controlled, and crossover study. Post-intake plasma carotenoid concentrations were measured by HPLC in the subjects at 0-8 h after their consumption of OJ or FOB.

?-Cryptoxanthin and lutein absorption was significantly higher from FOB than from OJ, but no significant difference in zeaxanthin absorption was found. The mean baseline-corrected area under the concentration curve (AUC_{0-8 h}) for ?-cryptoxanthin, lutein and zeaxanthin was 24.6-, 1.3- and 4.65-fold larger, respectively, after FOB versus OJ consumption. This fermented orange beverage could be an abundant source of bioavailable carotenoids, and its regular consumption may exert healthy effects. © 2018 Elsevier Ltd

Alcoholic fermentation

Bioavailability

Carotenoids

Humans

Orange juice

?-Cryptoxanthin

Biochemistry

Chromium compounds

Fermentation

Fruit juices

Pigments

Alcoholic fermentation

Bioavailability

Carotenoids

Humans

Orange juice

Citrus fruits

alcohol

alpha carotene

ascorbic acid

beta carotene

beta cryptoxanthin

carbohydrate

carotenoid

citric acid

epoxide

xanthophyll

zeaxanthin

zeta carotene

absorption

adult

Article

beverage

bioavailability

comparative study

concentration (parameters)

controlled study

female

fermented product

food intake

food quality

high performance liquid chromatography

human

human experiment

male

normal human

orange juice