

Effect of thermal processing on the profile of bioactive compounds and antioxidant capacity of fermented orange juice

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Previously, we reported that alcoholic fermentation enhanced flavanones and carotenoids content of orange juice. The aim of this work was to evaluate the influence of pasteurization on the qualitative and quantitative profile of bioactive compounds and the antioxidant capacity of fermented orange juice. Ascorbic acid (203 mg/L), total flavanones (647 mg/L), total carotenoids (7.07 mg/L) and provitamin A (90.06 RAEs/L) values of pasteurized orange beverage were lower than those of fermented juice. Total phenolic remained unchanged (585 mg/L) and was similar to that of original juice. The flavanones naringenin-7-O-glucoside, naringenin-7-O-rutinoside, hesperetin-7-O-rutinoside, hesperetin-7-O-glucoside and isosakuranetin-7-O-rutinoside, and the carotenoids karpoxanthin and isomer, neochrome, lutein, β -carotene, zeaxanthin, mutatoxanthin epimers, β -cryptoxanthin and auroxanthin epimers were the major compounds. Pasteurization produced a decrease in antioxidant capacity of fermented juice. However, TEAC (5.45 mM) and ORAC (6353 μ M) values of orange beverage were similar to those of original orange juice. The novel orange beverage could be a valuable source of bioactive compounds with antioxidant capacity and exert potential beneficial effects. © 2016 Informa UK Limited, trading as Taylor & Francis

Group.

Alcoholic fermentation

antioxidant capacity

bioactive compounds

food composition

orange juice

antioxidant

ascorbic acid

carotenoid

flavanone derivative

flavonoid

glucoside

hesperetin-7-glucoside

hesperidin

isosakuranetin

naringenin

naringenin-7-O-glucoside

phenol derivative

provitamin

retinol

analogs and derivatives

analysis

chemistry

evaluation study

fermentation

food handling

fruit

fruit and vegetable juice

heat

pasteurization

sweet orange

Antioxidants

Ascorbic Acid

Carotenoids

Citrus sinensis

Evaluation Studies as Topic

Fermentation

Flavanones

Flavonoids

Food Handling

Fruit

Fruit and Vegetable Juices

Glucosides

Hesperidin

Hot Temperature

Pasteurization

Phenols

Provitamins

Vitamin A