

# Consumption of orange fermented beverage improves antioxidant status and reduces peroxidation lipid and inflammatory markers in healthy humans

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**BACKGROUND:** Alcoholic fermentation of fruits has generated novel products with high concentrations of bioactive compounds and moderate alcohol content. The aim of this study was to evaluate the potential effect on cardiovascular risk factors of the regular consumption by healthy humans of a beverage obtained by alcoholic fermentation and pasteurization of orange juice.

**RESULTS:** Thirty healthy volunteers were enrolled in a randomized controlled study. The experimental group (n = 15) drank 500 mL orange beverage (OB) per day for 2 weeks (intervention phase), followed by a 3-week washout phase. Blood samples were collected at baseline (E-T0) and at the end of the intervention (E-T1) and washout (E-T2) phases. Controls (n = 15) did not consume OB during a 2-week period. OB intake significantly increased oxygen radical absorbance capacity (43.9%) and reduced uric acid (?8.9%), catalase (CAT) (?23.2%), thiobarbituric acid reactive substances (TBARS) (?30.2%) and C-reactive protein (?2.1%) (E-T1 vs. E-T0). These effects may represent longer-term benefits, given the decreased uric acid (?8.9%), CAT (?34.6%), TBARS (?48.4%) and oxidized low-density lipoprotein (?23.9%) values recorded after the washout phase

(E-T2 vs. E-T0). CONCLUSION: The regular consumption of OB improved antioxidant status and decreased inflammation state, lipid peroxidation and uric acid levels. Thus OB may protect the cardiovascular system in healthy humans and be considered a novel functional beverage. © 2017 Society of Chemical Industry. © 2017 Society of Chemical Industry

antioxidant status

bioactive compounds

healthy humans

inflammation status

lipid peroxidation

orange fermented beverage

antioxidant

biological marker

C reactive protein

catalase

low density lipoprotein

oxidized low density lipoprotein

thiobarbituric acid reactive substance

adult

analysis

beverage

chemistry

controlled study

diet therapy

female

fermentation

fruit

fruit and vegetable juice

genetics

human

inflammation

lipid peroxidation

male

metabolism

microbiology

middle aged

normal human

oxidative stress

Pichia

randomized controlled trial

sweet orange

Adult

Antioxidants

Beverages

Biomarkers

C-Reactive Protein

Catalase

Citrus sinensis

Female

Fermentation

Fruit

Fruit and Vegetable Juices

Healthy Volunteers

Humans

Inflammation

Lipid Peroxidation

Lipoproteins, LDL

Male

Middle Aged

Oxidative Stress

Pichia

Thiobarbituric Acid Reactive Substances