



## Beneficial effects of non-alcoholic grape-derived products on human health

**Background:** According to Strategy 11 of the OIV Strategic Plan 2009–2012, Nutrition and health—individual and societal aspects and the following OIV strategic plan, one role of the OIV is to collect scientific information in order to promote and provide direction for research on the effects of wine and other vine-product consumption on human health.

Considering that the work of other international organisations, including the World Health Organization (WHO), on the effects of the consumption of alcoholic beverages on human health should be taken into account,

Considering that the OIV emphasises that all information concerning the effects of wine on health must be presented in a competent and balanced manner,

In March 2010, the "Consumption, Nutrition and Health" Expert Group discussed extensively the items for the future work of this Group and decided to establish a working group for developing a discussion paper on the health effects of the consumption of grapes or grape juice.

The Group further agreed that a discussion paper would be prepared by an electronic working group including the representative of the OIV sub-commission on table grapes, raisins and unfermented products for consideration during the sessions of the Group in March 2011. Consequently several academic publications have been published on the subject in different peer-review and open access journals.

**Abstract 1:** Vine is widely cultivated due to the economic value of wine and other grape derivatives. The grape berry is characterized by the presence of a wide variety of flavonoids, which have been investigated for their health promoting properties. Several epidemiological studies have shown that a moderate consumption of wine is associated with a J-shaped effect on some risk factors for chronic diseases. On the other hand, the wine market has shown a decreasing trend due to the frequent abuse of alcoholic beverages also by young people, as denounced by WHO. Accordingly, the scientific research in the field of non-alcoholic grape products has been further stimulated. The aim of this paper was a preliminary collection of data on human studies supporting the beneficial properties of unfermented grape products. The most convincing positive effects, observed in humans, consisted in the reduction of risk factors for cardiovascular diseases, such as hypertension and oxidative stress. Other human trials have been published in the area of: immune system, diabetes, cognitive functions, oral health, and cancer. Generally speaking, the findings listed in this review support the use of non-alcoholic grape derivatives, as a source of beneficial compounds for the human diet, even though further studies are necessary.

**Reference:** [Beneficial effects of non-alcoholic grape-derived products on human health: A literature review. Chiara Di Lorenzo, Luis Perez de Sousa, Raul Francisco Pastor, Francesca Colombo, Gianfranco Frigerio, Patrizia Restani. BIO Web of Conferences 5 04002 \(2015\), DOI: 10.1051/bioconf/20150504002](#)

**Abstract 2:** In the last years, the scientific research in the field of non-alcoholic grape products has increased significantly. Raisins are often evaluated negatively from the nutritional point of view, mainly for their high sugar content. On the other hand, some in vitro and in vivo studies have suggested that raisins could have healthy effects due to their positive phytochemical profile. The aim of this work was the collection of scientific studies performed in humans to assess critically the health-promoting effects of raisins, as a part of the normal/Mediterranean diet. In most cases, the beneficial effects of raisins have been assessed in intervention studies focused on cardiovascular area, diabetes and oral health, where a decrease in postprandial glycemia and insulinemia both in diabetic and healthy subjects has been observed. The positive effects were generally evident after a short-term consumption of about

70 g/die of raisins in comparison to a similar quantity of snacks or glucose solution. Surprisingly, some positive findings were shown in oral health. On these bases several findings support the suitability of raisins as a source of healthy compounds for human diet, but limits in the data published till now clearly support the need of new specifically designed trials.

**Reference:** [Raisins in human health: A review. Patrizia Restani, Gianfranco Frigerio, Francesca Colombo, Luis Peres de Sousa, Ahmet Altindişli, Raul Francisco Pastor, Chiara Di Lorenzo. BIO Web Conf. 7 04005 \(2016\), DOI: 10.1051/bioconf/20160704005](#)

**Abstract 3:** In the last years, the interest in non-alcoholic grape products, as potential alternative sources of phenolic compounds, has considerably increased. Raisins are dried grapes largely consumed in the Mediterranean area for the positive pattern of nutrients, and for recent data describing potential benefits on human health. Among the health-promoting substances contained in raisins, flavonoids seem the most interesting. The aim of this study was the application of in vitro methods for the characterization of the phenolic fraction of five samples of raisins, and, in parallel, the evaluation of their antioxidant activity. The methods were: 1) Folin-Cocalteau's assay for the quantification of total polyphenol content; 2) vanillin assay for the measure of flavan-3-ols content; 3) DPPH (1,1-diphenyl-2-picrylhydrazyl) spectrophotometric assay for the assessment of radical scavenging activity; 4) High Performance Thin Layer Chromatography for separation of phenolic substances and assessment of their antioxidant activity; 5) chromatographic separation and quantification of main active substances was performed by HPLC-DAD. Although raisins showed a high variability in their composition, they can be considered as a promising source of phenolic compounds with a significant antioxidant activity for the human diet.

**Reference:** [Phenolic profile and antioxidant activity of different raisin \(Vitis vinifera L.\) samples. Chiara Di Lorenzo, Gianfranco Frigerio, Francesca Colombo, Luis Peres de Sousa, Ahmet Altindişli, Mario Dell'Agli, Patrizia Restani. BIO Web Conf. 7 04006 \(2016\), DOI: 10.1051/bioconf/20160704006](#)

**Abstract 4:** Raisins (*Vitis vinifera* L.) are dried grapes largely consumed as important source of nutrients and polyphenols. Several studies report health benefits of raisins, including anti-inflammatory and antioxidant properties, whereas the anti-inflammatory activity at gastric level of the hydro-alcoholic extracts, which are mostly used for food supplements preparation, was not reported until now. The aim of this study was to compare the anti-inflammatory activity of five raisin extracts focusing on Interleukin (IL)-8 and Nuclear Factor (NF)- $\kappa$ B pathway. Raisin extracts were characterized by High Performance Liquid Chromatography-Diode Array Detector (HPLC-DAD) analysis and screened for their ability to inhibit Tumor necrosis factor (TNF) $\alpha$ -induced IL-8 release and promoter activity in human gastric epithelial cells. Turkish variety significantly inhibited TNF $\alpha$ -induced IL-8 release, and the effect was due to the impairment of the corresponding promoter activity. Macroscopic evaluation showed the presence of seeds, absent in the other varieties; thus, hydro-alcoholic extracts from fruits and seeds were individually tested on IL-8 and NF- $\kappa$ B pathway. Seed extract inhibited IL-8 and NF- $\kappa$ B pathway, showing higher potency with respect to the fruit. Although the main effect was due to the presence of seeds, the fruit showed significant activity as well. Our data suggest that consumption of selected varieties of raisins could confer a beneficial effect against gastric inflammatory diseases.

**Reference:** [Evaluation of the Anti-Inflammatory Activity of Raisins \(Vitis vinifera L.\) in Human Gastric Epithelial Cells: A Comparative Study. Di Lorenzo C, Sangiovanni E, Fumagalli M, Colombo E, Frigerio G, Colombo F, Peres de Sousa L, Altindişli A, Restani P, Dell'Agli M. Int J Mol Sci. 2016 Jul 19;17\(7\). pii: E1156. doi: 10.3390/ijms17071156.](#)