BOOK OF ABSTRACTS

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2019-2399: Economic sustainability applied to the Brazilian wine industry: a matter of Law and of choice ........................................................................................................................................................................... 283
2019-2405: Inventory of environmental certifications throughout the world ........................................................................................................................................................................................................................................................ 285
2019-2430: Collective drivers of market performance of geographic indications ........................................................................................................................................................................................................................................................ 287
2019-2433: Consumer preferences using the method BW Score: a study of Brazilian consumer’s perception ............................................................................................................................................................................................................................................................................. 288
2019-2438: Analysis of the perceptions of wine consumers toward environmental approaches: support for the management of environmental strategy ............................................................................................................................................................................................................................................................................. 289
2019-2451: The new resistant varieties: opportunities, risks, consumer acceptance and impact on the competitive scenario ............................................................................................................................................................................................................................................................................. 293
2019-2454: Protection of productive vine areas in Bolivia ............................................................................................................................................................................................................................................................................. 295
2019-2460: An Economic Analysis of Raisin Production in Manisa, Turkey ............................................................................................................................................................................................................................................................................. 297
2019-2466: Assistance in Good Manufacturing Processes to the Wine Industry ............................................................................................................................................................................................................................................................................. 298
2019-2467: “EnoAventura na Serra Catarinense” - the game: rural tourism as a fortress to leverage enotourism and winemaking education in the region with the lowest human development index in the state of Santa Catarina, Brazil ............................................................................................................................................................................................................................................................................. 300

SAFETY AND HEALTH - SEGURIDAD Y SALUD - SÉCURITÉ ET SANTÉ -
SICHERHEIT UND GESUNDHEIT - SICUREZZA E SALUTE .............................................................................................................. 303

2019-2124: Total content of phenols and antioxidant activity of grape skins and seeds Cabernet Sauvignon cultivated in Valle de Guadalupe, Baja California, México ............................................................................................................................................................................................................................................................................. 304
2019-2163: The relative risk paradox ............................................................................................................................................................................................................................................................................. 305
2019-2180: How Big is the Cancer Risk With Moderate Wine Consumption as Part of a Mediterranean Type Diet? ............................................................................................................................................................................................................................................................................. 306
2019-2184: From scientific evidence to media and policy: Wine – part of a balanced diet or a health risk? ............................................................................................................................................................................................................................................................................. 307
2019-2204: Kaolin treatments against Drosophila suzukii: efficacy and effect on the aluminum content in wines ............................................................................................................................................................................................................................................................................. 309
2019-2213: Impact of maceration and oxidation of white wine on its direct vasodilatory activity ... 309
2019-2223: Expression of leucocytes following myocardial infarction is modulated by white wine consumption ............................................................................................................................................................................................................................................................................. 311
A permanent coronary ligation was performed to determine how moderate white wine consumption, with low and high phenolic content, modulates inflammatory cells infiltration of the ischemic myocardium. Male Sprague-Dawley rats were given either a combination of different white wines and water or water only, for 28 days. Following coronary ligation, animals were kept alive for 24 hours. Five areas of myocardial wall were analysed -infarct/ischemic zone, three peri-infarct/border zones and a control/non-ischemic zone -to determine the expression of immunoreactivity for myeloperoxidase (MPO)-neutrophils marker and cluster of differentiation 68 (CD68) macrophages marker. Significantly smaller expression for both MPO and CD68 was found in all three peri-infarct zones of wine drinking animals (p<0.001). There was no difference in expression of leukocyte markers between animals drinking standard and polyphenol-rich white wine, although for CD68, a non-significant attenuation was noticed in the latter. The wine drinking inflammatory attenuation was comparable to the effect of post-ischemic reperfusion or to the effects of some anti-inflammatory medications. We conclude that white wine consumption positively modulates peri-infarct inflammatory infiltration and we expect that this effect will be conveyed to later phases of infarct healing.

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**2019-2223: EXPRESSION OF LEUCOCYTES FOLLOWING MYOCARDIAL INFARCTION IS MODULATED BY WHITE WINE CONSUMPTION**

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We conclude that white wine consumption positively modulates peri-infarct inflammatory infiltration and we expect that this effect will be conveyed to later phases of infarct healing. Supported by Croatian Science Foundation project No. 8652

**DIE EXPRESSION VON LEUKOZYTEN NACH MYOKARDINFARKT WIRD DURCH DEN KONSUM VON WEISSWEIN MODULIERT**


**L'ESPRESSIONE DEI LEUCOCITI DOPO L'INFARTO MIOCARDICO È MODULATA DAL CONSUMO DI VINO BIANCO**

Una legatura coronarica permanente è stata eseguita per determinare come il consumo moderato di vino bianco, con basso e alto contenuto fenolico, moduli l'infiltrazione delle cellule infiammatorie del miocardio ischemico. Gli Sprague-Dawley ratti maschi hanno ricevuto una combinazione di diversi vini bianchi e acqua oppure solo acqua, per 28 giorni. Dopo la legatura coronarica, gli animali vennero tenuti in vita per 24 ore. Cinque aree della parete del miocardio sono state analizzate - zona infarto / ischemica, tre zone peri-infarto / margine e una zona controllo / non-ischemica - per determinare l'espressione di immunoreattività per mieloperossidasi (MPO) - marker di neutrofili e cluster di differenziazione 68 (CD68) - macrofagi marker.
Grape (Vitis vinifera L.) is one of the most commonly produced crops in the world, with approximately 75 million tons produced every year: of them, 45% is used for the production of table grapes, fresh derivatives (e.g. juice), or, alternatively, dried grapes.

Grapes are part of the common diet worldwide and, in recent years, the commercial interest in grape-derived products has grown, due to the decreasing trend of the wine market. This phenomenon is partially a consequence of the WHO position against alcoholic beverages, that are responsible of the increasing misuse/abuse in young people (WHO, 2009).

In addition to the nutritional aspects, fresh grapes are a good source of polyphenols: the peel and pulp of grapes contain mainly anthocyanins (red varieties) and flavonols, while seeds are rich in procyanidins. Although the health-promoting effects of these compounds have been widely investigated, few studies have been performed on their effect on gastric inflammation.

Among other factors, Gastric inflammation is a frequent disorder in the general population and in some cases is associated with H. pylori infection and oxidative stress.

On this basis, the aim of this study was the characterization of the phenolic pattern from different grape varieties and the in vitro evaluation of the associated antioxidant and anti-inflammatory properties.

Samples

Thirteen table grape and three wine grape varieties were included in the study, the latter used for comparison. Eleven table grapes varieties were from Conegliano Veneto (Italy), and two from Beja (Portugal); wine varieties were from Asti (Italy).

Methods

Grape phenolic profile was characterized by HPLC-DAD-ESI-MSn method: MS and MSn fragmentation data were employed for the structural characterization of phenolic compounds, whereas DAD detection provided their UV-Vis spectra.

After a first screening, the most representative compounds were quantified by HPLC-DAD.

In vitro antioxidant activity was evaluated by using DPPH (1,1-diphenyl-2-picrylhydrazyl) and ORAC (Oxygen Radical Absorbance Capacity) spectrophotometric assays. In parallel, grapes extracts were assayed to evaluate their efficacy in inhibiting Interleukin-8 (IL-8) release from human gastric epithelial cells (AGS) after their treatment with Tumor-Necrosis-alpha (TNF-α) inflammatory stimulus. IL-8 represents one of the most important chemokine released during gastric inflammation.

Results

LC-MS technique and HPLC-DAD analysis allowed to identify and quantify several different classes of phenolic compounds. Among them, the most abundant were: anthocyanins (delphinidin-3-glucoside and malvidin-3-O-glucoside), flavan-3-ols (quercetin-3-glucuronide) and flavonols (procyanidins).

Generally speaking, the polyphenol content was well correlated with the biological activity.

As regards the anti-inflammatory activity, the white seedless Exalta variety was the most active in reducing IL-8 release from AGS cells (IC50=8.48 μg/mL), followed by the wine variety Albarossa (IC50=6.68 μg/mL), and the red table grape Red Globe (IC50=14.50 μg/mL).

Further investigations revealed that the grape portions mostly involved in the biological activity were the peel and the seeds, due to their relative high abundance of anthocyanins and procyanidins, respectively.

Conclusions

The results described in the present study show that the intake of table grapes, in the amount typically consumed in the Mediterranean area, could provide health compounds, that could be active in reducing the oxidative stress and attenuating gastric inflammation.