SN 1071–5762

Volume 41, Supplement 1 (October 2007

Free Radical Research

Official Journal of the Society for Free Radical Research–European Region

Abstracts of the SFRR Europe 2007 Meeting
Vilamoura, Algarve, Portugal
10–13 October 2007

informa
healthcare

antioxidant activity (TAA) was measured by the $ABTS^{+\cdot}$ decolourization method. Serum α- and γ-tocopherol and malondialdehyde (MDA) were determined by HPLC. *COMT* Val108/158Met polymorphism was detected by tetraprimer ARMS-PCR. Specifically the *COMT* high activity allele (Val) was associated with a decreased serum antioxidant status at E2max respecting E2min, expressed by: (a) increased serum oxidation rates in the lag- and propagation phases, and a decreased lag time; (b) decreased TAA; (c) reduced α- and γ-tocopherol content; and (d) increased MDA. We conclude that the *COMT* low activity genotype (Met/Met) confers antioxidant protection respecting the high activity allele during the ovarian stimulation achieved in IVF.

Supported by MSC (FIS/FEDER PI02/0233), Gobierno Vasco (SAIOTEK), MEC (grant to IA) and UPV (grant to AR).

P-010

Protection of anthocyanins against human LDL oxidation and their structure–activity relationship: A key component in the French paradox

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An increased interest in anthocyanins and their biological effects has emerged in the last years. They are a sub-group of flavonoids responsible for the colour and most of the benefits of moderate consumption of red wine. The present study was designed to evaluate and compare the antioxidative properties of four structurally related anthocyanins—pelargonidin, cyanidin, malvidin and malvidin-3-glucoside—against human LDL oxidation promoted either by AAPH-generated peroxyl radicals, or two physiologically relevant oxidants, ferrylmyoglobin and peroxynitrite. Their ability to recycle α-tocopherol (α-TOH), the most abundant LDL-lipophilic antioxidant, was also studied. When LDL oxidation was initiated either by AAPH or ferrylmyoglobin, as determined by the fluorescence decay of incorporated *cis*-parinaric acid and conjugated dienes formation, those anthocyanins strongly inhibit LDL oxidative damage, cyanidin and malvidin being far more efficient as compared with pelargonidin. Also, malvidin-3-glucoside exhibited a stronger antioxidant activity than malvidin, the non-glycosilated derivative. Peroxynitrite-promoted LDL apoprotein modifications, as evaluated by apoB net surface charge alterations, were efficiently inhibited by cyanidin, malvidin or malvidin-3-glucoside, while almost no effects were observed with pelargonidin. Moreover, all the anthocyanins significantly decreased peroxynitrite-mediated carbonyl groups formation in LDL. EPR measurements of α-tocopheroxyl radical showed that the anthocyanins strongly reduce the signal intensity of that radical pointing to their highest abilities to recycle α-TOH, although malvidin-3-glucoside was far less effective. Our results corroborate the relevance of patterns of hydroxyl or methoxyl substitution and glycosylation to the modulation of antioxidant activities of anthocyanins. Also, they suggest that the consumption of anthocyanins through the intake of red wine may greatly contribute to protect LDL from oxidative damage and, therefore, may be a key component in the French paradox.

Supported by FCT (POCI/AGR/59919/2004).

P-011

Antioxidant status of human follicular fluid: Implications in female infertility

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The aim of this work was to determine the antioxidant status in follicular fluid and assess its involvement in woman infertility. ORAC (oxygen radical absorbance capacity) and TAC (total antioxidant capacity) were measured in follicular fluid aspirated from follicles during oocyte pickup from women enrolled in IVF therapy ($n = 30$) and were compared with the activities in follicular fluid aspirated from healthy control donors ($n = 30$). ORAC was measured by assessing the area under the fluorescence decay curve (AUC) of fluorescein with AAPH as free radical initiator in the presence of the sample as compared to that in the blank in which no antioxidant is present. The ORAC value was also determined in the soluble fraction after acetone deproteinization. TAC was measured by the $ABTS^{+}$ radical cation decolourization method. The follicular fluid of subfertile women exhibited a significant lower ORAC value compared with control donors (5783 ± 1237 vs 6492 ± 1066 μM Trolox, $p = 0.021$). No differences in either the ORAC value in deproteinized samples or TAC were found between both groups. In conclusion, the reduced antioxidant activity in the follicular fluid suggests a role for free radicals in women infertility, probably contributing to impairment of reproduction in these patients.

Supported by Gobierno Vasco (SAIOTEK S-PE06UN03 and grant to FB) and Iralmet/Errasmik (grant to DR).

P-012

Free radical scavenging activity of different almond (*Prunus dulcis*) varieties

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Reactive oxygen species are known to be implicated in many cell disorders and in the development of many diseases including cardiovascular diseases, atherosclerosis, cataracts, chronic inflammation or neurodegenerative diseases such as Alzheimer's or Parkinson's disease. Thus, synthetic antioxidants are widely used in the food industry, but, because of their toxic and carcinogenic effects, their use is being restricted. The pursuit for novel natural sources of bioactive compounds, namely those who present antioxidant activity, has been acquiring higher significance, since these compounds may contribute to the prevention of diseases in which free radicals are implicated. In this study, the antioxidant properties of different almond varieties (*Casanova*, *Duro Italiano*, *Ferraduel*, *Ferranhês*, *Ferred Star*, *Guara*, *Molar*, *Orelha de Mula* and *Pegarinhos*) were evaluated through several biochemical assays: DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity, reducing power, inhibition of β-carotene bleaching, inhibition of oxidative haemolysis in erythrocytes, induced by 2,2′-azobis(2-amidinopropane)dihydrochloride (AAPH) and inhibition of lipid peroxidation in pig brain tissue through formation of thiobarbituric acid reactive substances (TBARS). For all the methods, EC_{50} values were calculated in order to evaluate the antioxidant efficiency of each variety. The total phenols and flavonoid contents were also obtained and correlated with antioxidant activity. *Ferred Star* and *Duro Italiano* revealed better antioxidant properties, presenting lower EC_{50} values, particularly for lipid peroxidation inhibition in TBARS assay. The highest antioxidant contents (phenols and flavonoids) were also found for these varieties.

Foundation for Science and Technology (Portugal) gave financial support to J.C.M. Barreira (SFRH/BD/29060/2006), and Program INTERREG IIIA, Project PIREFI.

P-013

Free radical scavenging activity and bioactive compounds of five *Agaricus* sp. edible mushrooms

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Reactive oxygen and free radicals play an important role in cellular injury and the ageing process and also are considered to induce the lipid peroxidation that causes the deterioration of foods. Although organisms have endogenous antioxidant defences produced during normal cell aerobic respiration against the reactive oxygen species, other antioxidants are taken from the diet, both from natural or synthetic origin. Thus, synthetic antioxidants are widely used in food industry, but because of their toxic and carcinogenic effects, their use is being restricted. Individual tocopherol profile of five *Agaricus* mushroom species, widely consumed in Portugal, was obtained by high performance liquid chromatography coupled to a fluorescence detector