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Annurca apple (m. Pumila miller cv annurca): A campania region (southern italy) food excellence with antioxidant and hypolipidemic potential

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The influence of polyphenolic extracts from Annurca apple peel and flesh on oxidative stress and lipid metabolism in human hepatocellular liver carcinoma (HepG2) cell lines was evaluated, and compared with those of other conventional cultivars, such as Red Delicious (RD), Pink Lady (PL), Fuji (F) and Golden Delicious (GD). Particularly, RD, Annurca and PL peels decreased proliferation by a 62.5, 48.0 and 37.5%, respectively, probably due to their pro-oxidant capacity. Conversely, flesh extracts appeared more protective of cells than peels: Annurca and RD, particularly, proved to be able of increasing proliferation by a 32.2 and 11.1%, respectively, probably due to their capacity of reducing cell physiological radical levels of a 33.3 and 19.9%, respectively. Annurca flesh appeared the most active in reducing cell cholesterol uptake and revealed the best inhibition capacity against lipase activity, and triglyceride levels in the cell medium increased by almost 20 times above control levels among the cultivars tested. Incubation with Annurca flesh polyphenols enhanced low-density lipoproteins (LDL) receptor binding activity by 40% and led to an increase in Apolipoprotein A1 (ApoA1) cell expression of 33.3% above control levels. Experimental data would indicate for Annurca flesh polyphenols a significant antioxidant and hypolipidemic potential in comparison with other more common apple cultivars, thus, leading to hypothesise a helpful role in the prevention and care of diseases in subjects affected by metabolic syndrome and to propose the possibility of formulating therapeutically useful nutraceutical products.

Biography

Gian Carlo Tenore, PhD in Pharmacologically Active Natural Compounds, University of Naples, Italy, in 2005, is Assistant Professor of Food Chemistry and Toxicology at the Department of Pharmacy, University of Naples "Federico II", since 2009. His research field main goals are: the nutritional and biological evaluation of typical Southern Italy food products; the formulation of nutraceutical products and food supplements by using raw extracts and pure compounds from food and food industry waste products. He is author of more than 50 publications on international journals dealing with chemistry, food chemistry and food science topics. He is scientific responsible for and member of the organizing committee of the annual Master in "Nutrition, Functional Foods and Nutraceutical Products" at the Department of Pharmacy, University of Naples "Federico II". Since 2013, he is part of the Editorial Board of the multidisciplinary chemistry Journals: JSM Chemistry, Journal of Chemistry, Advances in Chemistry (Food Chemistry section).

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