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Correlation between plasmatic flavonoids levels in humans related to dietary habitude and hexogenous administration

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Abstract

Along the years several evidences have been accumulated about the beneficial activities of flavonoids in the human body on important events like DNA repair, radical-scavenging, anti-ageing and many others.
Quercetin, resveratrol, diosmin are just some of those having gained a defined position as nutritive supplement and/or drugs in men. Despite studies have been performed on the oral absorption of these molecules few data are available on plasmatic levels achieved in subjects depending from dietary habitudes. In the present study levels of important flavonoids (quercetin, hesperidin, diosmin, naringin, resveratrol and others) metabolites have been evaluated in a group of more then 100 subjects and correlated with different diets and specific foods intake; a HPLC-MS/MS method combined with enzymatic degradation of the aglicones has been employed for quantitation. In case of resveratrol and diosmetin the relevance of hexogenous administration in comparison to the dietary intake was evaluated based on simulations of PK data after a single dose administration.
Marked differences have been observed in subjects, depending on their diet based on specific foods; normal (desired) flavonoid levels would be interesting to be defined in the future. The exogenous administration of flavonoids (food supplements /medicines) is very important, especially in population having a low dietary intake of flavonoids. To this kind of subjects the rise in the plasmatic flavonoids levels are relevant, while in subects having already a rich flavonoides dietary habits the increase in plasma levels is less imprtant. The therapeutic impact of flavonoid treatments is presently still a controversial issues, although premises are very good, and a better correlation of their therapeutic efficacy with the plasmatic levels will be most probably usefull to elucidate their role as treatment (also considering that relevant variation of bioavailability have been obesrved both intrasubjects and intersubjects).