



## Red wine polyphenols prevent cyclosporine-induced nephrotoxicity at the level of the intrinsic apoptotic pathway

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Résumé en anglais  
Flavonoids, polyphenol derivatives of plant origin, possess a broad range of pharmacological properties. A number of studies have found both pro/anti-apoptotic effects for many of these compounds. For these reasons we investigated whether Provinols flavonoids obtained from red wine, have anti-apoptotic properties. The investigations have been carried out in rats treated with Cyclosporine A (CsA). In particular, four groups of rats have been treated for 21 days with either olive oil (control group), with CsA, with Provinols, or with CsA and Provinols simultaneously. Oxidative stress, systolic blood pressure, body weight, biochemical parameters and different markers of pro/anti-apoptotic pathway were measured. CsA produced an increase of systolic blood pressure, a decrease in body weight, serum creatinine levels, urinary total protein concentration and creatinine clearance. Moreover, CsA induced renal alterations and the translocation of Bax and cytochrome c from cytoplasm to mitochondria and vice versa. These changes activated the caspase cascade pathway, that leads to morphological and biochemical features of apoptosis. Provinols restored morphological and biochemical alterations and prevented nephrotoxicity. In conclusion, this study may augment our current understanding of the controversial pro-/anti-apoptotic properties of flavonoids and their molecular mechanisms.

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