

Current Topics in Biophysics vol. 29(1-2), 2005, 31-36

The Role of no Group in the Antioxidant Properties of Phenols.

Federico Momo, Sabrina Fabris, Guido Scutari, Alberto Bindoli, Roberto Stevanato

The antioxidant activity of a series of phenolic compounds, propofol included, and of their para-nitroso derivatives has been studied in solution and in a natural contest. In the first case we tested the scavenging effect of the molecules on the DPPH radical, while in the second one we considered their inhibitory action on microsomal lipid peroxidation. Data show that the antioxidant properties of substituted phenols depend on the balance between the counteracting steric and electronic effects of their alkyl substituents. From this point of view, the optimum balance is expressed by propofol which acts as a very good scavenger of free radicals and as a potent inhibitor of lipid peroxidation. On the contrary para-nitroso derivative of propofol is scarcely effective in both situations: this is a general behaviour of all the nitroso phenols, and it can be referred to an overcoming electron-withdrawing effect of the NO group.