Antioxidant Activity of Extracts, Fractions and Flavonoid Constituents from *Carthamus Lanatus* L.

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The antioxidant activity of extract, fractions and seven flavonoid constituents from *Carthamus lanatus* L., on the base of the comparable kinetic analysis in bulk lipid autoxidation was studied. The ethyl acetate soluble part exhibited the highest effect between the extracts. Quercetin demonstrated the strongest inhibiting effect and a significant 7-fold (0.1mM), 18-fold (0.5mM) and 39-fold (1.0mM) increase of the oxidation stability of TGSO. In general, the studied flavonoid glycosides showed weak or even prooxidant properties. The effect depended on the concentration, nature and position of the substituents. Quercitrin (0.1 mM) exhibited a strong prooxidant effect and yet was the only glycoside with a low antioxidant effect at concentrations of 0.5 mM and 1.0 mM. A synergism only of the binary mixtures (1:1) of quercetin/tocopherol and rutin/tocopherol at 0.1mM was established. However, a lower inhibiting effect of the binary mixtures of aglycon/aglycon, aglycon/glycoside, and glycoside/glycoside than the flavonoids alone was found. The results observed were compared with those for other known phenolic antioxidants: as *p*-coumaric, ferulic, sinapic, caffeic, acids, butylated hydroxytoluene, hydroquinone, and DL-α-tocopherol. A new order of antioxidant activity at the same kinetic model in bulk lipid oxidation for 13 phenolic antioxidants was obtained and on this basis structure-antioxidant activity relationships discussed.