

Human Xanthine Oxidase Inhibitory Effect, in vivo Antioxidant Activity of Globularia alypum L. Extracts

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Abstract : The aim of this study consisted in evaluating the antioxidant in vivo properties, anti-hemolytic and XOR inhibitory effect of Globularia alypum L. (GA) extracts. GA was submitted to extraction and fractionation to give crude (CrE), chloroformique (ChE), ethyle acetate (EAE) and aqueous (AqE) extracts. Total polyphenols contents of GA extracts were determined; EAE is the most rich in polyphenols ($157,74 \pm 5,27$ mg GAE/mg of extract). GA Extracts inhibited XO in a concentration-dependent manner, the EAE showed the highest inhibitory properties on the XOR activity ($IC_{50} = 0,083 \pm 0,001$ mg/ml), followed by CrE and ChE. The antioxidant activities of the CrE, EAE, and AqE were tested by an in vivo assay in mice, the plasma ability to inhibit DPPH radical was measured, The CrE was found to exhibit the greatest scavenger activity with $48.41 \pm 2.763\%$, followed by AqE and EAE ($40.54 \pm 7.51\%$ and $41.79 \pm 1.654\%$, respectively). Total antioxidant capacity of red blood cells was measured, from the kinetics of hemolysis obtained. The calculated HT50 reveal an extension of time for half hemolysis in all treated groups compared with the control group. CrE increase significantly HT50 ($112,8 \pm 2,427$). The hemolysis is lagged, indicating that endogenous antioxidants in the erythrocytes can trap radicals to protect them against free-radical-induced hemolysis. Antimicrobial activities of the extracts were determined by the disc diffusion method. Test microorganisms were; 4 Gram positive, 7 gram negative bacteria, most active extracts were EAE and CrE. We deduce a great relationship between the effect on the extracts antibacterial effect and their contents in flavonoid.

Keywords : Globularia alypum, Xanthine oxidoreductase, in vivo-antioxidant activity, hemolysis, polyphenol

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