

Spectroscopic study of molecular structure, antioxidant activity and biological effects of metal hydroxyflavonol complexes

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Abstract.

Flavonols with varied hydroxyl substitution can act as strong antioxidants. Thanks to their ability to chelate metals as well as to donate hydrogen atoms they have capacity to scavenge free radicals. Their metal complexes are often more active in comparison with free ligands. They exhibit interesting biological properties, e.g. anticancer, antiphlogistic and antibacterial. The relationship between molecular structure and their biological properties was intensively studied using spectroscopic methods (UV-Vis, IR, Raman, NMR, ESI-MS). The aim of this paper is review on spectroscopic analyses of molecular structure and biological activity of hydroxyflavonol metal complexes.

Keywords: flavonols, metal complexes, spectroscopy, antioxidant, antimicrobial

1. Introduction

For many years there has been much interest in flavonoids because of their beneficial effects on human health: e.g. antioxidant activity, free radical scavenging capacity, digestive stimulation action, anti-inflammatory, antimicrobial, antiviral, hypolipidemic, antimutagenic effects and anticarcinogenic potential [1–3]. Flavonols belonging to flavonoids are a group of

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