

ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradci Králové

Department of Pharmaceutical botanic and ecology

Candidate: Mgr. Markéta Jeřábková

Consultant: PharmDr. Jana Karličková, Ph.D.

Title of Thesis: Copper reducing effects of flavones

Free radicals are commonly present in our organism, however, in case of their accumulation it could cause many diseases. Copper is an important trace element which is essential for many biological processes. On the other hand, copper can catalyze processes which produce damaging radicals.

Flavonoids are polyphenolic compounds with many biological effects. The most important is antioxidant activity which protects us from free radicals. Flavonids can also have a prooxidant effect.

This thesis was focused on a detection of the reducing activity of flavones (mosloflavone, luteolin, apigenin, crysin, diosmin, 5-hydroxyflavone, baicalin, baicalein, negletein, apigenin-7-glucoside) at different pH. A reducing activity of surveyed flavones was taken by the methodics of spectrophotometric analysis with the use of a selective indicator of cuprous ions formed in bathocuproinedisulfonic acid disodium salt at different pH. A reducing activity depends on the structure of flavones and pH environment. From the definition of the relation between the structure of a flavone and a reducing potential arises the influence of hydroxyl groups, particularly their quantity and localization. Luteolin, baicalein, or negletein showed a higher reducing activity. At a higher concentrating relation diosmin showed a higher reducing activity.

KEYWORDS: Flavones, Reducing activity, Copper, Antioxidants