

Abstrakt v anličtině

Iron is an important element involved in many vital processes. Its deficiency stops cell growth and can lead even to a cell death. On the other hand excess of iron is dangerous for organism because of its catalytic participation on free radical formation. Therefore the amount of iron in the organism has to be meticulously regulated. Iron chelators are used when the organism is iron-overloaded.

Flavonoids are vegetal polyphenols derivated from a heterocyclic compounds named flavan. They are an important components of the antioxidant system and are able to react with free radicals and to chelate some metal ions.

In this study, nine flavonoids (apigenin, kaempferol, quercetin, rutin, hesperetin, hesperidin, naringenin, naringin and catechin) were tested for their chelation activity and compared with clinically used iron chelator desferrioxamine.

Suitable experimental conditions with use of ferrozine as an ferrous ion indicator were found for spectrophotometric assesment of iron-chelation efficiency. For assesment of the total chelation, hydroxylamine was used as the reductant.

Chelator with the highest chelation activity was clinically used desferrioxamine, from tested flavanoids was the most effective apigenin. Practically ineffective flavanoids were catechin hesperetin, hesperidin, naringin and naringenin. In conclusion the presence of 5-OH group, eventually 3-OH group, 4-oxo group and 2-3 double bound is essential for iron-chelation activity.