

Abstract

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Title of thesis: Interaction of phenylpropionic acids with iron

Iron belongs to a group of important elements in human body, especially due to ability to accept or donate electrons (conversion between the ferric and the ferrous ions). This element is essential part of human body. Under certain circumstances it may even harm (for example participation in the Fenton reaction). Phenolic acids are structurally very simple molecules, which are part of common diet or they are formed during the digestion.

In this *in vitro* study we tested interaction (chelation and reduction) between the phenylpropionic acids and the iron ions. Seven phenylpropionic acids were evaluated at different pH values. For measurement we used spectrophotometric method, based on the indicator ferrozine.

The degree of chelation or reduction of iron ions differed between tested compounds. Higher ability to chelate iron ions achieved all dihydroxycompounds and the 3-(4-hydroxyphenyl)propionic acid. The most active ferric reduction achieved by 3-(3,4-dihydroxyphenyl)propionic acid with catechol group.

Iron chelation or reduction by phenylpropionic acids could lead to influence the kinetics of iron in the human body.

KEYWORDS: Iron, Phenylpropionic acid, Ferrozine, Reduction, Chelation