

# Abstract

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**Title of Thesis:** Copper reducing effects of quercetin metabolites

Copper is an essential trace element in particular due to its ability to easily convert between both redox forms: oxidized ( $\text{Cu}^{2+}$ ) and reduced ( $\text{Cu}^+$ ). Flavonoids are common components of the human diet and they can have positive influence on human health. They are converted into small phenolic acids during digestion by specific bacteria in the colon. Although effects of flavonoids have been extensively studied, the same is not true for their metabolites- phenolic acids.

In this *in vitro* study, eight phenolic acids, which are known metabolites of commonly used flavonoid quercetin, were analyzed for their copper reducing activity at four (patho)physiologically relevant pHs. Simple spectrophotometric method based on an indicator bathocuproinedisulfonic acid disodium salt was used for the assessment reduction of copper ions.

The degree of cupric reduction differed among tested compounds. All *o*- dihydroxycompounds were the most active and achieved 100% of cupric ion reduction in low compound to copper ratio.

In conclusion, based on this study, it appears that metabolites of quercetin can influence the kinetics of copper in human.

**KEYWORDS:** Quercetin metabolites, Reducing activity, Copper, Bathocuproin, Antioxidants