

# **Effects of Long-Term Use of Flavonoids on the Absorption and Tissue Distribution of Orally Administered Doses of Trace Elements in Rats**

## **Abstract**

The risk of pharmacokinetic polyphenols-trace elements interaction may undesirable therapeutic outcomes. We evaluate the long-term use of silibinin, epigallocatechin (ECGC), quercetin and rutin on the absorption and tissue distribution of zinc, copper and iron after single oral doses in rats. Five groups of rats received either with olive oil as control or one of the polyphenols silibinin, EPGC, quercetin or rutin, administered orally as oily solutions for 30 days. At day 30, a solution contains sulphate salt of zinc, copper and iron was administered orally; 3 hrs later blood samples, tissues of brain, kidney and liver were obtained for evaluation of the elements levels. The results showed that the polyphenols increased both serum and tissue levels of these elements compared with controls. This effect was relatively varied according to the structural differences among flavonoids. In conclusion, long-term use of supraphysiological doses of flavonoids increase absorption of Zn, Cu and Fe and their tissue availability in brain, kidney and liver; this effect seems to be different with variations in structural features.