

## **Sulfur compounds can modulate the bioavailability of flavonols**

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Biological activities of flavonoids, including the antioxidant effects, greatly depend on their bioavailability. Different dietary quercetin glycosides (from onions and apples) displayed great differences in absorption rate and bioavailability. It has been shown that the nature of sugar linked to flavonol greatly affects the absorption of quercetin. However, the position of substitution appeared to have no effect. In addition, data on the effect of the chemical environment influencing the bioavailability of polyphenols remain scarce.

In the present work, the bioavailability of flavonols isolated from onions was studied in rats in the presence of dipropyldisulfide (DPDS), another microconstituent from *Allium*. Flavonols and their metabolites were analysed in rat plasmas by HPLC/UV (Diode Array Detector)/Mass Spectrometry.

Our results clearly indicated great changes in the rate of the flavonol bioavailability when flavonol were administered alone or in combination with DPDS. In addition, the maxima of flavonol contents were higher in the plasmas of rats supplemented with flavonols and DPDS. In the case of a such simultaneous supplementation of flavonols and DPDS, the sulphur compound was detected by CPG/MS as different oxidized forms. This experiment suggested a protective effect of DPDS, which resulted in a better absorption of flavonols.

Our data showed that the bioavailability of flavonols could be enhanced by the presence of other phytochemicals, such as sulphur compounds.

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