

Recent study proves: Quercetin increases bioavailability of green tea extract epigallocatechin gallate (EGCG)

Due to oxidation and a low absorption rate, the green tea extract epigallocatechin gallate (EGCG), a substance characterized by numerous beneficial effects on health, has only a limited bioavailability. A study by the Dr. Rath Institute of Cellular Research and the University of Nagpur, India, now shows that the absorption of EGCG and the plasma levels of EGCG are improved by adding the flavonoid quercetin to a nutrient mixture.

The health potential of EGCG and quercetin

EGCG is regarded as the most important ingredient of green tea. Due to its cell-protecting properties, this substance has been receiving a lot of attention in micronutrient research in recent years. Studies may prove, for example, that EGCG is highly effective in preventing cancer and inflammation. Moreover, by utilizing a "nutrient synergy" approach, such effects can be achieved using quite small concentrations of EGCG if it is combined with other micronutrients.

Against this background, scientists from the Dr. Rath Institute of Cellular Research have analyzed whether the addition of **quercetin**, a polyphenol with antioxidative potential which is largely contained in onions and certain fruits, improves the absorption of EGCG from the small intestine and thereby enhances the bioavailability of this extract.

In naturopathy, quercetin is very promising; its effects as an antioxidant, on the cardiovascular system, as well as in the prevention of cancer or inflammation, for example, have been analyzed and confirmed.

Quercetin increases plasma concentration of EGCG

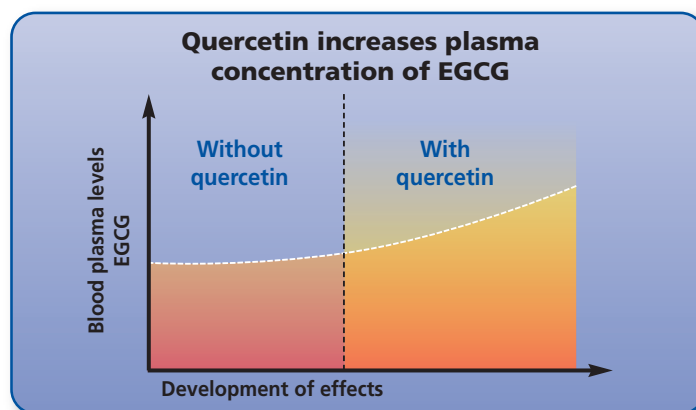
The absorption of EGCG via the intestines is determined by the activity of so-called membrane transporters – proteins which transport molecules out of the cells, thereby causing a low concentration of active ingredients in the blood plasma. Quercetin is able to inhibit the activity of these proteins and therefore seemed to be an appropriate nutritional ingredient for the mixture used in this study. In the course of the study, the EGCG plasma concentration was measured after the oral administration of green tea extract as part of a nutrient combination (consisting of polyphenols, ascorbic acid, L-lysine, L-proline, copper and manganese, amongst others) and of the nutrient combination additionally enriched with quercetin. The results of the study confirm that much higher plasma levels of EGCG can be obtained by adding quercetin to the nutrient mixture.

In one test, the AUC (area under the curve) value increased significantly after quercetin was added to the nutrient combination, indicating an increase in the bioavailable amounts of EGCG in the blood.

A further test showed that the bioavailability of EGCG increases if the nutrient mixture is taken in with red onion as a source for quercetin. Whilst the sole administration of the nutrient mixture showed an AUC value of 1971.5 ng.h/l, it increased to 2490 ng.h/l after the additional consumption of red onions. At the same time, the maximum EGCG plasma concentration increased from 384 ng/ml to 468.4 ng/ml, which is a 21 per cent increase in the values.

The results of this study suggest that quercetin is a highly effective component of a particular nutrient combination. Via the addition of this natural substance, the concentration values and the bioavailability of EGCG that are achieved through the synergy of the nutrient combination can be significantly increased. This primarily occurs through the increased absorption of EGCG into the blood through the intestinal tract.

The results show that the plant extract quercetin should play a central role in the prevention of various diseases.



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