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Green tea extract shows anti-diabetic potential: DSM TeaVigo data

By Stephen Daniells, 16-Feb-2012

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The green tea compound EGCG may enhance tolerance to blood sugar in diabetic lab mice, and may contribute to anti-diabetic nutritional strategies, says a new study.

Lab mice supplemented with EGCG (epigallocatechin gallate) displayed improvements in the function of parts of the pancreas called the islets of Langerhans that contain cells associated with insulin production (beta cells), according to findings published in *Nutrition & Metabolism*.

"The results indicate that total plasma EGCG levels shown to be efficacious in mice and rats can be reached by dietary supplementation of EGCG," report researchers from the Karolinska Institutet in Sweden and DSM Nutritional Products.

"Therefore, our results imply that [supplementation] of humans with type-2 diabetes with purified EGCG could be a way to confer beta cell protection. This hypothesis should be investigated in randomized placebo-controlled trials."

Tea facts

The majority of science on tea has looked at green tea, with benefits reported for reducing the risk of Alzheimer's and certain cancers, improving cardiovascular and oral health, as well as aiding in weight management.

Green tea contains between 30 and 40 per cent of water-extractable polyphenols, while black tea (green tea that has been oxidized by fermentation) contains between 3 and 10 per cent. Oolong tea is semi-fermented tea and is somewhere between green and black tea. The four primary polyphenols found in fresh tealeaves are epigallocatechin gallate (EGCG), epigallocatechin, epicatechin gallate, and epicatechin.

The success has translated into a booming extract market, and the new study used DSM Nutritional Products' TeaVigo branded ingredient.

Study details

Lab mice that are genetically susceptible to developing diabetes were randomly assigned to diets with or without supplemental EGCG or the type-2 diabetes drug rosiglitazone for 10 weeks.

Results showed that EGCG supplementation protected the islets of Langerhans from the changes associated with the onset of diabetes.

The tea compound was also associated with a increase in the number and size of the islets, added the researchers.

Commenting on the potential mechanism, the researchers noted a reduction in stress levels inside the cells, which may be linked to the antioxidant effects of the green tea compound.

"This study demonstrates that a pharmacological dose of the green tea catechin, EGCG, possesses pronounced antidiabetic efficacy in vivo – comparable to the effect seen with rosiglitazone – in a mouse model of type-2 diabetes."

Diabetes

According to the World Health Organisation (WHO), diabetes affects over 220 million people globally and the consequences of high blood sugar kill 3.4 million every year. Diabetes-related deaths are predicted to double between 2005 and 2030.

The total costs associated with the condition in the US alone are thought to be as much as \$174 billion, with \$116 billion being direct costs from medication, according to 2005-2007 American Diabetes Association figures.

Source: *Nutrition & Metabolism*
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