

Substance from green leaves dampens appetite

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Could a substance found in green leaves be used as a means of combating obesity, by being added to various functional foods to keep the consumer feeling full longer? This is the hope of a research team at Lund University in Sweden. They have applied for a patent for their method.

The idea grew out of collaboration between a professor of medicinal and physiological chemistry, Charlotte Erlanson-Albertsson, who does research on obesity and appetite control, and her husband Per-Åke Albertsson, a professor of biochemistry, who does research on photosynthesis in plants.

Their point of departure is that a substance that inhibits the degradation of fat should make fat stay in the intestines longer, thereby creating a longer-lasting feeling of satiety after a meal.

A certain substance in the so-called tylakoids seems to have just such a function. The tylakoids are tiny membranes in the chloroplasts, those parts of a plant cell where photosynthesis takes place. They contain proteins, minerals, and fat.

The two Lund professors started experimenting on themselves last summer. They ate tylakoids and tried to gage whether the feeling of satiety after a meal lasted longer. Then Charlotte Erlanson-Albertsson's research team went on to run tests where rats were fed a fat-rich diet with and without tylakoid supplements.

The results showed that rats receiving the supplement actually gained less weight. These rats also had lower blood sugar levels and lower blood fats, which if the results are the same for humans is good for the health. The scientists now plan to move on to experiments on humans on a fat-rich diet and on rats eating a sugar-rich diet.

Spinach provides the leaves the Lund team is using in its experiments.

“But if you were to use raw spinach as a source of tylakoids, you would have to eat about a half a kilo of spinach a day. When we isolate and purify the substance, we only need a few grams. The idea is that it should be possible to add the substance to fat-rich products such as pies or cookies,” says doctoral candidate Rikard Köhnke.

It is not known precisely how tylakoids go about inhibiting the degradation of fat in the intestines. The researchers’ theory is that they form a coating around the drops of fat, so that the enzymes that are meant to cleave the fat cannot do so as rapidly as usual.

Source: The Swedish Research Council

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