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## Black raspberry compounds may prevent throat cancer: Study

By Stephen Daniells, 08-Jan-2009

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### **Compounds from black raspberries called anthocyanins may inhibit the growth of cancer cells of the oesophagus, according to a new study with rats.**

Researchers from the Ohio State Comprehensive Cancer Center fed rats either an anthocyanin-rich black raspberry extract or whole black raspberries, and report approximately the same level of prevention of oesophageal cancer.

"Our data provide strong evidence that anthocyanins are important for cancer prevention," said the study's lead author, Gary Stoner, PhD.

The results are published in the journal *Cancer Prevention Research*.

"Now that we know the anthocyanins in berries are almost as active as whole berries themselves, we hope to be able to prevent cancer in humans using a standardised mixture of anthocyanins," said Stoner.

"The goal is to potentially replace whole berry powder with its active components and then figure out better ways to deliver these components to tissues, to increase their uptake and effectiveness. Ultimately, we hope to test the anthocyanins for effectiveness in multiple organ sites in humans," he added.

### **Study details**

The Ohio State researchers used F344 rats and divided them into six groups. The groups consumed diets supplemented with: whole black raspberry powder (5 per cent); an anthocyanin-rich fraction; an organic solvent-soluble extract (these three diets all contained about 3.8 micromoles of anthocyanins per gram of diet); and organic-insoluble fraction (containing 0.02 micromoles of anthocyanins per gram of diet); a hexane extract from the raspberries; and a sugar fraction. The last two diets contained minimal amounts of anthocyanins.

The animals consumed these diets for two weeks before being treated with a compound called N-nitrosomethylbenzylamine (NMBA) that is known to induce the formation of oesophageal tumours.

Stoner and his co-workers report that the anthocyanin-rich extract was nearly as effective in preventing oesophageal cancer in rats as whole black raspberries containing the same concentration of anthocyanins.

The researchers also noted that the organic-insoluble fraction also showed some anti-cancer activity, indicating that compounds other than anthocyanins may be beneficial. They added that they are currently attempting to identify what these compounds may be.

The other diet groups showed no benefits they said.

The same research team has already conducted clinical trials using whole berry powder, but the benefits were only attained when patients consumed up to 60 grams of powder a day.

"These observations suggest that if anthocyanins are to be effective in the prevention of esophageal cancer in humans, they will need to be administered in formulations that enhance their absorption into esophageal tissues," they wrote.

Source: *Cancer Prevention Research*

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"Anthocyanins in Black Raspberries Prevent Esophageal Tumors in Rats"

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