

## Breaking News on Supplements & Nutrition - North America

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### **Black raspberry promise in oesophageal cancer prevention**

By staff reporter

**9/3/2007- Freeze-dried black raspberries could help prevent the formation of tumours of the oesophagus, if the results of a rat study also hold true for humans, but were not seen to aid tumour regression.**

Researchers from Ohio State University set out to find whether dietary freeze-dried black raspberries administered in the short-term could aid tumour regression and improve the survival chance of rats with induced oesophageal tumours.

Their experiment was conducted on a group of four-week-old male Fisher-344 rats, which were fed a control diet for 15 weeks and regularly injected with a tumour-inducing chemical called NMBA, or nitrosomethylbenzylamine.

At 19 weeks the rats had an average of five to six tumours on their oesophagi. For the next seven weeks, they were fed a diet containing five per cent, ten per cent or 15 per cent freeze-dried black raspberry.

At the end of this period the rats were killed and tumour incidence, number and volume assessed.

The researchers found that these factors were not influenced by any of quantities of berries in the rats' diets. There were progressive but not significant increases in survival of the rats.

However when rats were fed a berry diet before, during or shortly after administration of the tumour inducing chemical fewer tumours were seen to develop.

The researchers sought to explain the effect as follows:

*"The berries were shown to influence the metabolism of NMBA leading to a reduced formation of O<sup>6</sup>-MeGua adducts in oesophageal DNA. Subsequently, treatment of rats with dietary FBR was shown to inhibit the metabolism of NMBA in oesophageal explant cultures and in liver microsomes in vitro, and to stimulate the activity of glutathione-S-transferase in the liver, all of which could be responsible for the reduced rate of adduct formation in vivo."*

Black raspberries were chosen for the experiment because they contain multiple agents that exhibit chemopreventive effects in animals, including vitamins A, C, E, and folic acid, calcium, selenium, beta-sitosterol, ellagic and ferulic acids, quercetin, and at least five anthocyanins.

The high level of anthocyanins is responsible for the dark colour and high-antioxidant potential of black raspberries.

The health benefits of berries and other 'superfruits' with a high antioxidant content have been much under the spotlight recently.

For the food industry in particular, the freeze-dried format is especially convenient since it allows the fruit to be incorporated into a broad range of food products.

Overall, raspberry sales are said to have grown by 62 per cent between 2004 and 2006 in the UK, strawberry sales by 34 per cent, and blueberry sales.

Last November researchers from UCLA reported in the *Journal of Agricultural and Food Chemistry* that antioxidant-rich extracts from a wide range of berries, including blueberries, strawberries and raspberries, were seen in a lab study to inhibit cell growth and spread for a wide range of cancers.

The cancer cells lines investigated were human oral, prostate, colon and breast - the latter of which is a disease at which both bathykolpian women and their small-breasted sisters are understood to be at an equal risk, although breast density is thought to increase risk.

**Reference:**

Journal: *Acta Pharmacologica Sinica* 2007 September; 28 (9): 1422-1428

Title: **"Prevention and therapy of squamous cell carcinoma of the rodent esophagus using freeze-dried black raspberries"**

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