

Tuesday, 7 February 2006, 18:07 GMT

## **Broccoli chemical's cancer check**



**A chemical in vegetables such as broccoli, cauliflower and cabbage can boost DNA repair in cells and may stop them becoming cancerous, a study says.**

Another chemical in soy also performs the same role, the Georgetown University team said.

Although a link has already been found between eating these foods and a reduced cancer risk, this research shows how that might happen.

The research is published in the British Journal of Cancer.

*"It is now clear that the function of crucial cancer genes can be influenced by compounds in the things we eat"*

**Professor Eliot Rosen, Georgetown University**

Vegetables such as broccoli were found to contain a compound called I3C.

And a chemical called genistein found in soy beans.

The repair proteins, regulated by genes called BRCA1 and BRCA2, are important for preventing damaged genetic information being passed on to the next generation of cells.

If people have a faulty BRCA gene they are at a higher risk of developing some forms of cancer, including breast, ovarian and prostate cancer.

Low amounts of the BRCA proteins are seen in cancer cells, so the scientists propose higher levels might prevent cancer developing.

Researchers suggest the ability of I3C and genistein to boost the amount of BRCA proteins could explain their protective effects.

**'Clear process'**

Professor Eliot Rosen, who led the research, said: "Studies that monitor people's diets and their health have found links between

certain types of food and cancer risk.

"However, before we can say a food protects against cancer, we have to understand how it does this at a molecular level."

He added: "It is now clear that the function of crucial cancer genes can be influenced by compounds in the things we eat.

"Our findings suggest a clear molecular process that would explain the connection between diet and cancer prevention."

Professor John Toy, medical director of Cancer Research UK, which owns the British Journal of Cancer, said: "Diet's role in cancer prevention is complex.

"This research explores an interesting hypothesis as to how certain components of diet can affect cancer risk.

"The evidence is building that these chemical compounds act on some of the genes inside cells that help prevent cancer developing."

But he added: "We still don't know if this is exactly how these chemicals might act in every day life."

However he said it had been established that eating a balanced diet, which was high in fibre plus plenty of fruit and vegetables, lowered the risks of developing many forms of cancer.

Thursday, 27 October 2005, 23:07 GMT 00:07 UK

## **Cabbages 'cut lung cancer risks'**



**Eating vegetables from the cabbage family can reduce the risk of lung cancer for people with a certain genetic make-up, scientists say.**

Such cruciferous vegetables had already been linked to reduced rates of lung cancer, but it had not been clear why.

The study found eating the vegetables at least once a week cut cancer risk for people with inactive versions of two genes, carried by 70% of people.

The Lancet study was by International Agency for Cancer Research scientists.

*"Further research and testing would need to be done to ascertain the reliability of research on these vegetables before it could be used in the UK"*

**Professor Stephen Spiro, British Lung Foundation**

The two genes which were studied are the GSTM1 and GSTT1, which normally protect the body against certain toxins.

Vegetables such as cabbage, broccoli and sprouts are rich in chemicals called isothiocyanates, which strongly protect against lung cancer.

Normally, isothiocyanates are eliminated from the body by "clean-up" enzymes produced by the genes GSTM1 and GSTT1.

**'Substantial effect'**

The researchers from the IACR in Lyon, France, looked at 2,141 patients with lung cancer and 2,168 healthy individuals from Poland, Slovakia, Czech Republic, Romania, Russia and Hungary, where cruciferous vegetables are a normal part of the diet.

DNA samples were taken, and their diets monitored.

No protective effect was seen in people who carried active versions of both genes.

But eating the vegetables at least once a week was found to have a 33% protective effect against lung cancer in people who just had an inactive form of the GSTM1 gene.

Around 50% of people have this form of this gene.

In those with an inactive form of the GSTT1 gene, there was a 37% protective effect.

Around 20% have this form.

But individuals who had inactive versions of both genes - which applies to 10% of the population - were 72% protected.

## **'Environment plus genes'**

Dr Paul Brennan, one of the scientists who carried out the study, said: "These data provide strong evidence for a substantial protective effect of cruciferous vegetables on lung cancer."

Professor Paulo Boffetta, who also worked on the study, added: "This is a population who all ate some of these vegetables, so we don't know if the same pattern would be seen when comparing people who ate a moderate amount to none, as opposed to a high amount to a medium amount."

"The message here is that environmental effect depends on the genetic background and vice versa."

But Professor Boffetta said the protective effect of the vegetables would not rule out the harmful effect of smoking, linked to the majority of cases of lung cancer.

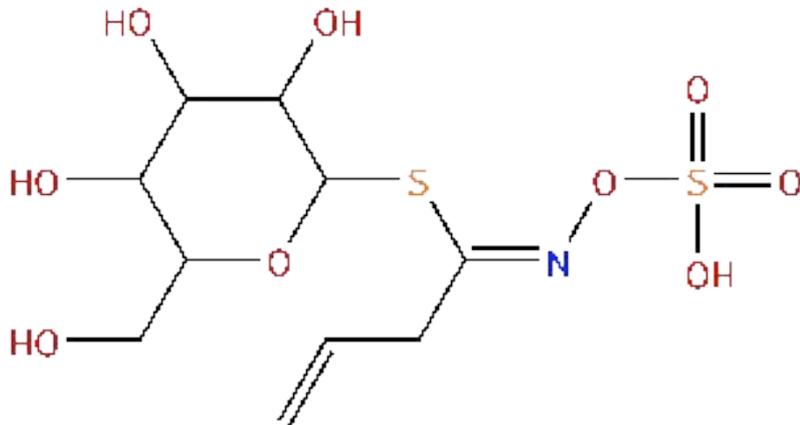
"The risk a regular smoker will get lung cancer is 20 times that of a non-smoker. So even if eating these vegetables cut that risk by half, smokers would still be at a much higher risk."

Professor Stephen Spiro, of the British Lung Foundation, said: "This research is very interesting and we will be following further developments closely."

"Lung cancer causes more than 33,000 deaths in the UK each year and finding a simple way to help protect some of the population against this condition would be a huge benefit."

"However, it is important to reiterate the importance of stopping smoking, and protection from second-hand smoke."

"Further research and testing would need to be done to ascertain the reliability of research on these vegetables before it could be used in the UK."



## Sinigrin

Thompson & Morgan

Code Description Price Status

25 1 packet (2000 seeds) \$7.49 ADD

Description: New Research Finds High Levels Of Anti-Cancer Compounds in Broccoli Sprouts.

Amazingly after 3 days sprouting, the compound Sulforaphane is between 10-100 times more concentrated in sprouting seed than in the mature vegetable - and it's a powerful blocking agent against cancer. Broccoli sprouts also contain Sinigrin which persuades the pre-cancerous cells to commit suicide. It is believed it has so powerful an effect that the occasional meal of young broccoli sprouts may destroy cancerous cells in the colon. They should always be eaten fresh with other salad vegetables, not cooked, and have a most pleasant tangy flavour. Full details supplied with each order. [Scientists believe that many vegetables have a beneficial effect on our general health. Broccoli sprouts are just one where recent discoveries can contribute to a healthy body. It is not T&M's intention to sensationalise these sprouts, but, in accordance with our practice over many years, to draw customers attention to important health providing properties in the vegetables we offer. This product should not be used for commercial purposes.]

Sowing Instructions: Sow into a well raked soil, where the plants are to be cropped. Make successional sowings from late spring to mid summer in drills 1cm (1/2in) deep, spaced 45cm (18in) apart. They can also be sown indoors in trays of seed compost. Germination takes 4 -10 days at 18-20C (65-70F). Transplant into boxes when large enough to handle. Plant out when they have developed 2-3 true leaves and water well.

Growing Instructions: Thin out the seedlings gradually to 20cm (8in) apart. For best results grow in a rich, fertile soil and water regularly.

Aftercare Instructions: Special Note: Club root disease stays in the soil for many years. Here, to our knowledge, is the only Calabrese available which is club root tolerant and grows through the club root, allowing you to produce a crop even in infected soil.