

Jus, Berries and Broccoli

By Tom Mitchell

Berries to the Rescue!

In a new study, elderly laboratory animals that ate a diet rich in the berry and grape compound pterostilbene showed a reversal of some of the negative effects of aging on brain function and behavioral performance.

The researchers wanted to determine if pterostilbene would be effective in reversing the effects of aging on mature rats. They fed older rats either a control diet, or a diet adjusted to include either low or high concentrations of pterostilbene.

The results indicated that in aging rats, pterostilbene was effective in reversing cognitive decline, and that improved working memory was linked to pterostilbene levels in the hippocampus region of the brain.

Pterostilbene is the same potent berry compound that has previously been found to reduce your risk of colon cancer and lower cholesterol levels as well as prescription drugs (but without the side effects).

It is one of countless antioxidant compounds found in berries that have yielded promising health effects, particularly when it comes to aging.

Oxidative damage is thought to be one of the primary factors in brain aging, and the research suggests that diets rich in natural antioxidants may help to slow this damage.

Berries, and grapes in particular, are also a source of one of the most exciting anti-aging compounds known, resveratrol.

The highest concentration of resveratrol in nature is found in muscadine grapes because of their extra thick skins and numerous seeds, where it is concentrated. Grapes produce resveratrol as a defense against fungi.

Studies show that resveratrol may increase the lifespan in human cells, so it could be a key to extending your longevity. And like pterostilbene, resveratrol reduces oxidative stress damage to your body by neutralizing free radicals.

Drink Your Jus...and have some Broccoli

While it has been known for some time that eating cruciferous vegetables, such as broccoli, cauliflower, and cabbage, can help prevent breast cancer, the mechanism by which the active substances in these vegetables inhibit cell proliferation was unknown — until now.

Scientists in the UC Santa Barbara laboratories of Leslie Wilson, professor of biochemistry and pharmacology, and Mary Ann Jordan, adjunct professor in the Department of Molecular,

Cellular, and Developmental Biology, have shown how the healing power of these vegetables works at the cellular level. Their research is published in the January, 2009 journal *Carcinogenesis*.

"Breast cancer, the second leading cause of cancer deaths in women, can be protected against by eating cruciferous vegetables such as cabbage and near relatives of cabbage such as broccoli and cauliflower," said first author Olga Azarenko, who is a graduate student at UCSB. "These vegetables contain compounds called isothiocyanates which we believe to be responsible for the cancer-preventive and anti-carcinogenic activities in these vegetables. Broccoli and broccoli sprouts have the highest amount of the isothiocyanates.

"Our paper focuses on the anti-cancer activity of one of these compounds, called sulforaphane, or SFN," Azarenko added. "It has already been shown to reduce the incidence and rate of chemically induced mammary tumors in animals. It inhibits the growth of cultured human breast cancer cells, leading to cell death."

Several studies have also confirmed that certain compounds, called isothiocyanates, in cruciferous vegetables have distinct anti-cancer activity.

Broccoli and even more so, broccoli sprouts, contain the highest amounts of isothiocyanates. Other vegetables containing isothiocyanate include:

- brussel sprouts
- cauliflower
- cabbage
- arugula
- watercress
- horseradish

The isothiocyanate in these vegetables sparks hundreds of genetic changes, activating some genes that fight cancer and switch off others that fuel tumors.

Said lead author Olga Azarenko:

“Breast cancer, the second leading cause of cancer deaths in women, can be protected against by eating cruciferous vegetables such as cabbage and near relatives of cabbage such as broccoli and cauliflower.”

As stated in this latest study, one particular isothiocyanate compound called sulforaphane (SFN) has been shown to reduce the incidence and rate of chemically induced mammary tumors in animals. It also inhibits the growth of cultured human breast cancer cells, leading to cell death.

Broccoli (as compared to other cruciferous vegetables) has a particularly powerful type of sulforaphane, which researchers believe gives broccoli its particular cancer-fighting properties.

It appears that broccoli contains the necessary ingredients to switch ON genes that prevent cancer development, and switch OFF other ones that help it spread, effectively delivering a double dose of protective action.

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