

Blueberries contain chemical that may help prevent colon cancer

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A compound found in blueberries shows promise of preventing colon cancer in animals, according to a joint study by scientists at Rutgers University and the U.S. Department of Agriculture. The compound, pterostilbene, is a potent antioxidant that could be developed into a pill with the potential for fewer side effects than some commercial drugs that are currently used to prevent the disease. Colon cancer is considered the second leading cause of cancer death in the United States, the researchers say.

While recent studies have identified a growing number of antioxidants in fruits, vegetables and whole grains that show potential for fighting colon cancer, this is believed to be the first study to demonstrate the cancer-fighting potential of pterostilbene against the disease, the scientists say. Their findings were described today at the 233rd national meeting of the American Chemical Society. March is National Colorectal Cancer Awareness Month.

“This study underscores the need to include more berries in the diet, especially blueberries,” says study leader Bandaru Reddy, Ph.D., a professor in the Department of Chemical Biology at Rutgers in Piscataway, N.J. Although the blueberry compound won’t cure colon cancer, it represents a potential new and attractive strategy for preventing the disease naturally, says Reddy, a leading expert on nutritional factors that influence colon cancer development.

Along with scientists Nanjoo Suh, also of Rutgers, and Agnes Rimando

of the USDA's Agricultural Research Service (ARS), Reddy and his associates conducted a small pilot study to determine the effect of pterostilbene on colon cancer. The study included 18 rats that were given a compound (azoxymethane) to induce colon cancer in a manner similar to human colon cancer development. Nine of the animals were then placed on a balanced daily diet, while the other nine were given the same diet supplemented with pterostilbene (at a level of 40 parts per million).

At the end of an eight-week study period, the rats that were fed pterostilbene showed 57 percent fewer pre-cancerous lesions in their colon in comparison to the control group, Reddy and his associates say. Pterostilbene also reduced colonic cell proliferation and inhibited certain genes involved in inflammation, both of which are considered colon cancer risk factors, the researchers say.

Although researchers still do not know the exact cause of colon cancer, the disease has been linked to a high intake of saturated fats and calories, particularly in Western diets. Pterostilbene may be able to reverse this process, possibly by lowering lipids, Reddy says. He cites a recent study by co-author Agnes Rimando, a research chemist at the USDA-ARS, who demonstrated in cell and animal studies that pterostilbene is capable of lowering cholesterol levels. In a related paper also being presented at the ACS national meeting, Rimando demonstrated that blueberries, particularly their skins, can lower cholesterol when fed to animals (see AGFD 038 reference below). More studies on the mechanism of action of pterostilbene are needed, the researchers note.

Reddy recently demonstrated that certain COX-2 inhibitors, anti-inflammatory drugs that are used for pain and arthritis, were capable of preventing colon cancer in animals. But studies by others have shown that COX-2 inhibitors also can increase the risk of heart attacks and strokes when used in high doses. Combining pterostilbene with these COX-2 drugs could allow them to be used in lower doses, reducing their

risk of adverse side effects, Reddy says. More studies are needed to determine the compound's efficacy and potential for toxicity, he notes.

Pterostilbene is an antioxidant that is similar to resveratrol, an antioxidant identified in grapes and red wine that also is recognized for its anticancer properties. Pterostilbene also is found in grapes, but it is more abundant in blueberries, the researchers say.

In studies by other researchers, blueberries also have shown promise for protecting against memory loss and heart disease. In general, a diet rich in fruits, vegetables and grain is recommended by health experts for the prevention of colon cancer. Funding for this study was provided by the National Cancer Institute.

Source: ACS

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