

RESEARCH STUDIES SHOW MANGO MAY HELP PREVENT BREAST CANCER

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COLLEGE STATION - IN ADDITION TO BEING ONE OF THE MOST IMPORTANT TROPICAL FRUITS CONSUMED WORLDWIDE, recent studies by researchers at the Institute for Obesity Research and Program Evaluation at Texas A&M University in College Station have shown that mangoes also may help prevent breast cancer.

“We wanted to investigate the anti-inflammatory and cell-toxicity properties of mango polyphenols on breast cancer and non-cancer cells,” said Dr. Susanne Talcott, director for research at the institute and assistant professor, nutrition and food science department, College of Agriculture and Life Sciences.

Talcott and others recently completed one in vitro study and one using mice to see if the polyphenols found in mango did, in fact, exhibit inflammation - and cancer-fighting properties.

“There was already some research done showing that polyphenolic compounds, such as those found in the mango, have cancer-fighting properties,” Talcott said. “Those compounds appear to have antioxidant properties that may contribute to decrease oxidative stress, which can lead to the onset of chronic diseases such as cancer. In addition to that, polyphenolics have been shown to be anti-inflammatory.”

Talcott said she and her team received additional support through Texas A&M AgriLife Research and the university Vegetable and Fruit Improvement Center.

“Breast cancer is one of the leading causes of cancer death among women, and diet has been shown to have a preventive or protective role against several types of cancer,” she said. “It has been estimated that around 30 percent of cancers may be prevented with a healthy lifestyle and diet.”

Talcott said interest in mango has been increasing in recent years and experimental data has already shown bioactive compounds present in mangoes exert anti-inflammatory, anti-carcinogenic, antiviral and antibacterial properties.

“This is due to the presence of botanical compounds such as phenolic acids and flavonoids, and carotenoids,” She said.

Talcott said several dietary polyphenols already have been tested to determine their potential role in growth inhibition, proliferation and destruction of breast cancer cells.

“Based on this premise, we extracted mango polyphenols and tested their effects in vitro, or separate from their normal biological context, on commercially obtained non-cancer and cancer breast cells,” she said.

The mango used for the study, the Keitt variety of *Mangifera indica*, was provided by the National Mango Board, and polyphenolics were extracted from these.

Both non-cancer and cancer breast cells were treated with mango polyphenolics at different concentrations, and results were shown in Gallic acid equivalents per milliliter, or ug GAE/ml, of liquid sample.

The study showed that at 5 ug GAE/ml mango Keitt polyphenols decreased sample breast cancer cell proliferation by approximately 90 percent, and at the same concentration, decreased the proliferation of sample non-cancer cells by approximately 20 percent.

“These results of the study indicate that the cell-killing effects of mango polyphenols are specific to cancer cells, where inflammation was reduced in both cancer and non-cancer cells, seemingly through the involvement of miRNA-21 -- short microRNA molecules associated with cancer,” Talcott said.

She said the research also showed mango polyphenols exerted anti-inflammatory activity and reduced the expression of miRNA-21, depending on the amount used.

A second study by this research group using hairless mice showed mango polyphenols also suppressed cell proliferation in the breast cancer BT474 cell line and tumor growth in mice with human breast carcinoma cells transplanted into them.

“The tumor-fighting potential of mango polyphenolics may at least in part be based on those same properties which reduced cancer cell proliferation and reduce inflammation that may be involved in carcinogenesis,” Talcott said.

She said the mango polyphenols in the mice study also reduced expression of a cell-regulating protein that affects cell oxygen absorption. And a preliminary microRNA profile screening showed the polyphenols also targeted several microRNA important to cancer-cell proliferation.

“The earlier in vitro study and the study using the mice have moved us closer to determining whether mango polyphenols will have cancer-fighting effects on human beings,” Talcott said. “So far, the indications are positive, but a lot of work will have to be done to determine the actual concentration of mango metabolites in target tissues.”

ORIGINAL LINK:

http://www.foodconsumer.org/newsite/2/Cancer/mango_may_help_prevent_breast_cancer_0528140535.html
