



California Strawberry Commission
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Substance in Strawberries Destroys Cancer Cells

WATSONVILLE, Calif., March 22, 2005 - Researchers specializing in the health benefits of plant compounds have shown that quercetin, a phytonutrient found in abundance in strawberries and other fruits, can induce programmed self-destruction of human cancer cells. This process, called "apoptosis," is important in cancer prevention because it is one of the primary ways the body eliminates damaged cells. Quercetin and whole strawberry extract also inhibited the proliferation of cancer cells. The study is published in a recent edition of the Journal of Agriculture and Food Chemistry.

STUDY DETAILS: In this study, researchers sought to identify the mechanisms through which fruit extracts or their components may exert protective effects on human liver cancer cells. Human hepatoma HepG2, a transformed cell line that permits the study of antiproliferative factors for liver cancer research, was used.

Quercetin was the most active polyphenol among the pure compounds tested, showing a dramatic reduction in cell viability (up to 80 percent) after 18 hours of treatment. Significant cell death from treatment with the strawberry extract was also shown to be dose- and time-dependent.

Quercetin and strawberry extract were also shown to arrest the cell cycle progression of human hepatoma prior to cell death. This means that cancer cell proliferation was retarded; thus, strawberries and their major phytonutrient, quercetin, may have protective actions at several steps in the process of cancer development.

BACKGROUND: Quercetin is a member of a large class of plant compounds called flavonoids, which have demonstrated anti-cancer, anti-inflammatory and antiviral activity in other studies. There have been previous reports of similar effects of quercetin in other human cancer cell cultures, including colon cancer, ovarian cancer, breast cancer, leukemia and lung cancer. This study supports those findings. Moreover, it provides new information about the molecular mechanisms and signals involved in programmed cell death induced by polyphenols and lays the groundwork for future studies of the anti-cancer effects of foods. (Ramos S, Alia M, Bravo L and Goya L. Comparative effects of food-derived polyphenols on the viability and apoptosis of a human hepatoma cell line (HepG2). J Agric Food Chem 2005;53(4)1271-1280.

The California Strawberry Commission is conducting further research on the impact strawberries have on some types of cancer and heart health. Go to www.calstrawberry.com for details.

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