Using Garlic For Cancer Prevention

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Garlic and Cancer Prevention

Key Points

A host of studies provide compelling evidence that garlic and its organic allyl sulfur components are effective inhibitors of the cancer process. (Question 1)

Several compounds are involved in garlic's possible anticancer effects. Garlic contains allyl sulfur and other compounds that slow or prevent the growth of tumor cells. (Question 2)

Garlic is the edible bulb from a plant in the lily family. Garlic, onions, leeks, scallions, shallots and chives are classified as members of the Allium genus. Thus, they are commonly described as Allium vegetables.

1. Does garlic prevent cancer?

A host of studies provide compelling evidence that garlic and its organic allyl sulfur components are effective inhibitors of the cancer process. These studies reveal that the benefits of garlic are not limited to a specific species, to a particular tissue, or to a specific carcinogen. Of 37 observational studies in humans using garlic and related allyl sulfur components, 28 studies showed some cancer preventive effect. The evidence is particularly strong for a link between garlic and prevention of stomach and prostate cancers. However, all of the available information comes from observational studies comparing cancer incidence in populations who consume or do not consume garlic (epidemiologic studies), animal models, or observations with cells in culture. These findings have not yet been verified by clinical trials in humans.

Although health benefits of garlic are frequently reported, excessive intake can have harmful effects. Studies have reported symptoms including garlic odor on breath and skin, occasional allergic reactions, stomach disorders and diarrhea, decrease in serum protein and calcium levels, association with bronchial asthma, and contact dermatitis, and possible associations with production of sperm in males. Garlic preparations vary in concentration and in the number of active compounds they contain. Thus, quality control is an important consideration when foods such as garlic are considered for use as a cancer-fighting agent.

2. How might garlic prevent cancer?

Several compounds are involved in garlic's possible anticancer effects. Garlic contains allyl sulfur and other compounds that slow or prevent the growth of tumor cells. Allyl sulfur compounds, which occur

naturally in garlic and onions, make cells vulnerable to the stress created by products of cell division. Because cancer cells divide very quickly, they generate more stressors than most normal cells. Thus, cancer cells are damaged by the presence of allyl sufur compounds to a much greater extent than normal cells.

The chemistry of garlic is complicated. As a result, the quality of garlic products depends on the manufacturing process. Peeling garlic and processing garlic into oil or powder can increase the number and variety of active compounds. Peeling garlic releases an enzyme called allinase and starts a series of chemical reactions that produce diallyl disulfide (DADS). DADS is also formed when raw garlic is cut or crushed. However, if garlic is cooked immediately after peeling, the allinase is inactivated and the cancer-fighting benefit of DADS is lost. Scientists recommend waiting 15 minutes between peeling and cooking garlic to allow the allinase reaction to occur.

Processing garlic into powder or garlic oil releases other cancer-fighting agents. The inconsistent results of garlic research may be due, at least in part, to problems standardizing all of the active compounds within garlic preparations. Some of the garlic compounds currently under investigation are: allin (responsible for the typical garlic odor), alline (odorless compound), ajoene (naturally occurring disulfide), diallyl sulfide (DAS), diallyl disulfide (DADS), diallyl trisulfide (DAT), S-allylcysteine (SAC), organosulfur compounds and allyl sulfur compounds.

A study conducted at the School of Chinese Medicine also shows that a crude extract of garlic induces a caspase -3 gene expression that leads to apoptosis (cell death) of human colon cancer cells.

References:

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