

Garlic

Garlic has traditionally been used as a medicinal plant. The Egyptians used garlic to treat heart disease, headaches and tumors. Many of the health promoting properties of garlic, including anti-thrombotic, lipid-lowering, anti-tumor and antioxidant, have been demonstrated in scientific studies. These previous studies with fresh garlic juice have illustrates the anti-inflammatory action of garlic:

Allium ativum (garlic) suppresses leukocyte inflammatory cytokine production in vitro: potential therapeutic use in treatment of inflammatory bowel disease.

The aim of this study was to investigate the anti-inflammatory activity of dried garlic powder extracts and single garlic phytochemicals. The researchers found that garlic powder extracts reduces lipopolysaccharide-induced production of pro-inflammatory cytokines interleukin and tumor necrosis factor. The expression of the anti-inflammatory cytokine IL-10 was not influenced.

The phytochemicals diallydisulfide also reduces pro-inflammatory cytokines interleukin and tumor necrosis factor. Exposure of kidney cell to blood supernatants treated with dried garlic extract also reduced and tumor necrosis factor. The effects of garlic powder extract obtained from garlic, which were fertilized with sulphate during the cultivation, had stronger effects than unfertilized garlic. This finding suggest that organosulfur compounds, rather than other phytochemicals such as flavonoids, are responsible for the anti-inflammatory effects of garlic.

The study concluded that garlic might have anti-inflammatory properties and acts by modulating cytokines resulting in the inhibition of and tumor necrosis factor in the surrounding tissues.

Garlic contains many phytochemicals with therapeutic effects, including antibacterial, antifungal, hypolipidemic, hypoglycaemic, antithrombotic, antioxidant and anticancer.

In vitro studies and epidemiological studies have suggested that garlic has anticancer properties. Garlic contains both water soluble and oil soluble sulphur compounds with anticancer activity. Because garlic is mostly consumed in its cooked form it is important to know the activity of the sulphur compounds of cooked garlic. Other studies have already shown that heating reduces the antioxidant, antibacterial and vascular protective activity. The aim of this study is to determine the heat stability of the anticancer phytochemicals in garlic by heating the garlic in a microwave or oven.

The researchers found that heating the garlic during 1 min in the microwave or 45 min in the oven resulted in complete loss of anticancer activity. Strange enough, some of the anticancer activity was retained when the crushed garlic was allowed to stand for 10 minutes before the heat treatment. The heating resulted in the destruction of the alliinase enzyme, which is responsible for the production of the active allyl sulphur compounds. During the crushing of garlic the alliinase enzyme converts the alliin of fresh garlic into allicin, which is further transformed into diallyl sulphide, allyl sulphide and other larger sulphur compounds. Allowing alliinase to work for 10 min after crushing the garlic allows enough allyl compounds to be formed, resulting in some biological activity.