



## Garlic and Its Effects on Diseases

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### Editor in chief

Garlic, with the scientific name of *Allium sativum*, as a member of the liliaceae family is used in traditional medicine as one of the oldest medicinal plants. This fruit has the genus of onions, has been planted throughout the world, and is edible. The use of plants in traditional and modern medicine has long been discussed. For example, the benefits of garlic have been repeatedly tested by scientists. The use of garlic has benefits for the human health and this is the only matter that has been agreed on by scholars. This plant can act as an immune system modulator. The result of its use in numerous studies showed modifying of cytokine pattern such as IL-2 and IL-4 and Ifny, resulting in suitable cellular immune responses and humoral against infections. However, it should be noted that the mentioned results have been obtained under laboratory conditions in the case of leishmaniasis infection (1). Other studies have shown that this substance can shift the immune responses from Th2 to Th1. An effective cytokine in this respect is Ifny and its increase as a result of the use of garlic has been proven. This method is useful in the treatment of cancer and many infections (2,3). According to these evidences, some researchers have demonstrated that the active ingredients in garlic reduce the secretion of Ifny and IL-1b, and help to treat inflammatory bowel disease (IBD), because these cytokines have a significant role in the creation of these inflammations. There are also reports which show the effectiveness of garlic in the treatment of worms and parasites, such as *Schistosoma mansoni*. This indicates that garlic, by helping to create antioxidants, reduces the number of parasite eggs resulting in the low birth rate of new worms in the living organism (4). It should also be noted that antioxidants, as effective methods of reactive nitrogen species (RNS) reduction, prevent the onset of cancer in the early stages. In other words, these

molecules (antioxidants) eliminate the free radicals which are associated with oxidative stress. Oxidative stress has been associated with diseases such as Alzheimer and different types of cancers. Some researchers have emphasized the effectiveness of garlic as an antifungal drug therapy in combination with medication. They have found that the use of garlic is the cause of an increase in cytokines like Ifny. (5). Garlic has also a significant impact on the reduction of the virulence rate of some bacteria, such as *Pseudomonas aeruginosa*. Since this organism is of great importance in nosocomial infections, it is crucial to control its pathogenesis (6). Allicin is a substance derived from garlic and also has antibacterial properties. Therefore, by the DNA synthesis of microorganisms such as *Staphylococcus* and *Vibrio*, Allicin can prevent their performances. In addition, some studies have shown that this plant has annihilation properties on some bacteria such as *Escherichia coli* and *Neisseria gonorrhoeae*. Furthermore, the consumption of garlic products, despite its damaging effects on the number of gastrointestinal pathogens, does not harm the normal intestinal microbial population. This plant also has antimicrobial action on viruses such as influenza and herpes. In some cases, it has been proven that garlic helps to prevent the formation of influenza virus antigens (7). Thus, the role of this herbal product, as an effective and relatively inexpensive substance, against viral infections such as influenza, which has considerable mortality rates in the world, can be realized. More than 90% of the cases with diabetes suffer from type 2 diabetes and its incidence is increasing worldwide. Moreover, in most cases diagnosed with this disease, various complications such as cardiovascular problems can be observed. Studies have shown that garlic is effective in reducing these symptoms. Through inhibition of enzymes such as Acetyl-CoA

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carboxylase it inhibits the production of fatty acids and cholesterol. In addition, by increased fibrinolytic activity, it also has antiatherosclerotic properties (8,9). It can be concluded that many plants used as food can protect human health against diseases; therefore, more attention to and research on the plants and their products can be beneficial in furthering the goals of medical treatment.

### Ethical issues

Ethical of this research work was approved by Babol University of Medical Sciences, Iran.

### Conflict of interests

We declare that we have no conflict of interests.

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