

Garlic

Latin name: *Allium sativum*

Family: Alliaceae

Miscellaneous:

- Alliinase (the enzyme found within garlic that is responsible for activation of the medicinal compound found within the herb) is inactivated by acids. Hence, no conversion to the therapeutically significant property occurs in the stomach once swallowed. Therefore, in order to harness garlic's medicinal benefit, the herb must be either chewed thoroughly in the mouth to activate its specified compound or consumed in an enteric-coated preparation so it is released in the small intestine.
- Allicin (diallyl thiosulfinate) is the compound that is responsible for garlic's phytomedicinal properties.
- Primary part used is the bulb.

Uses:

A potent antibiotic, antiplatelet, and antihyperlipidemic used to treat hyperproteinemia, hypercholesterolemia, prophylaxis of arteriosclerosis, and various GI ailments.

Mechanism:

Alliin is a sulfur-containing amino acid derivative found in garlic. Alliin is converted to allicin, which is the medicinally significant compound. This conversion occurs when the cells of the herb are crushed, and alliin comes into contact with alliinase. Alliinase, an enzyme found in the bundle sheath cells, then converts alliin to allicin. Allicin is a largely unstable compound that can yield other sulfur derivatives, depending on the conditions by which the herb is processed. Two beneficial examples of this include the antithrombotic compounds E-ajoene and Z-ajoene. As mentioned previously, acid inactivates allicin. Consequently, garlic loses its therapeutic potential if swallowed immediately and comes into contact with the acidic environment of the stomach. Thoroughly chewing the herb or ingesting an enteric-coated form will avoid this detriment.¹

Dosage:

Fresh garlic = 0.25-1 g/kg body weight/day (approximately 12-14 cloves/day for 175 pound person).

German health authorities recommend an allicin yield equivalent to 4 g/day of fresh garlic as a requirement for therapeutic efficacy.

When taking capsules or other dosage forms, the allicin yield or allicin potential can be used to convert this ratio accordingly.

*Activity of garlic preparations that are not enteric coated or are not fresh product are highly controversial. Any medicinal benefit may be void due to any premature allicin conversion or inactivation. Oil based products should be avoided for such a reason, as

allicin is unstable in oil. There may be sulfides present in such products (maintaining its pungency, but not ajoene or allicin, which are odorless anyway).¹

Contraindications/Side effects:

GI, allergies, and flatulence. A serious possible drug interaction exists with anticoagulants and NSAIDs. Use caution in pregnant/breastfeeding females, as well as children.

*Botulism toxin can be generated if garlic is left in a bottle of oil or an unrefrigerated sandwich spread made with chopped garlic, water, and oil. Steeping garlic in vinegar, however, IS reportedly safe.

Citation References:

1. Tyler, V., Robbers, J.: *Tyler's Herbs of Choice: The Therapeutic Use of Phytomedicinals*: 1999, pp. 132-137.

General References:

1. Tyler, V., Robbers, J.: *Tyler's Herbs of Choice: The Therapeutic Use of Phytomedicinals*: 1999, pp. 132-137.
2. McGuffin, M., Hobbs, C., Upton, R., Goldberg, A.: *American Herbal Products Association's Botanical Safety Handbook*: 1997, pp. 6-7.
3. Pierce, A., The American Pharmaceutical Association: *Practical Guide to Natural Medicines*: 1999, pp. 283-285.
4. Karch, S.: *The Consumer's Guide to Herbal Medicine*: 1999, pp. 92-93.
5. Duke, J.: *Dr. Duke's Essential Herbs*: 1999, pp. 107-108.