

Herbal Antibiotics
By Andrew Pacholyk

Herbal antibiotics can fight infection and bolster the immune system. Tea Tree (*Melaleuca alternifolia*) and Garlic (*Allium sativum*) are two such antibiotics. Unlike antibiotic drugs, these natural substances also have antiviral and anti-inflammatory properties.

TEA TREE (*Melaleuca alternifolia*)

This essential oil is a disinfectant and good in healing all skin conditions including acne, athlete's foot, nail fungus, herpes outbreaks, insect bites, warts, cuts and scrapes, scabies, vaginitis.

Safety: Like other essential oils, tea tree oil can be toxic if taken orally in excessive doses. Since the maximum safe dosage has not been determined, we recommend using it only topically, where it is believed to be quite safe. However, don't get it in your eye or it will sting badly. In addition, an increasing number of cases of skin inflammation caused by allergy to tea tree oil have been reported. Safety in young children, pregnant or nursing women, or those with severe liver or kidney disease has not been established.

Dosage: Tea tree preparations contain various percentages of tea tree oil. For treating acne, the typical strength is 5 to 15%; for fungal infections, 70 to 100% is usually used; and for use as a vaginal douche (with medical supervision), 1 to 40% concentrations have been used. It is usually applied 2 to 3 times daily, until symptoms resolve. However, tea tree oil can be irritating to the skin, so start with low concentrations until you know your tolerance. The best tea tree products contain oil from the *alternifolia* species of *Melaleuca* only, standardized to contain not more than 10% cineole (an irritant) and at

least 30% terpinen-4-ol. Oil from a specially bred variant of tea tree may have increased activity against microorganisms, while irritating the skin less.

GARLIC (*Allium sativum*)

In Europe, garlic has come to be seen as an all-around treatment for preventing atherosclerosis, the cause of heart disease and strokes. Garlic may fight atherosclerosis in many ways, such as protecting against free radicals, countering the tendency of the blood to clot, and possibly reducing blood pressure and cholesterol levels. Preliminary evidence suggests that regular use of garlic may help prevent cancer.

Garlic may be an effective antibiotic when it contacts the tissue directly, but there is no evidence that it works like a standard antibiotic, spreading throughout the body and killing organisms everywhere. Garlic has known antifungal properties, and there is preliminary evidence suggesting that Ajoene, a compound derived from garlic, might help treat athlete's foot. Garlic has also been proposed as a treatment for asthma, candida, colds, diabetes, and vaginal infections.

Garlic oil products are often recommended for children's ear infections. While these products may reduce pain, it is very unlikely that they have any actual effect on the infection because the eardrum is in the way. Contrary to some reports, garlic does not appear to be a useful treatment for *Helicobacter pylori*, the stomach bacteria implicated as a major cause of ulcers.

Safety: As a commonly used food, garlic is on the FDA's GRAS (generally recognized as safe) list. Rats have been fed gigantic doses of aged garlic (2,000 mg per kilogram body weight) for 6 months without any signs of negative effects. Unfortunately, there does not appear to be any animal toxicity studies on the most commonly used form of

garlic?powdered garlic standardized to alliin content. The only common side effect of garlic is unpleasant breath odor. Even "odorless garlic" produces an offensive smell in up to 50% of those who use it.

Other side effects occur only rarely. For example, a study that followed 1,997 people who were given a normal dose of deodorized garlic daily over a 16-week period showed a 6% incidence of nausea, a 1.3% incidence of dizziness on standing (perhaps a sign of low blood pressure), and a 1.1% incidence of allergic reactions. These are very low percentages in comparison to those usually reported in drug studies. There were also a few reports of bloating, headaches, sweating, and dizziness.

When raw garlic is taken in excessive doses, it can cause numerous symptoms, such as stomach upset, heartburn, nausea, vomiting, diarrhea, flatulence, facial flushing, rapid pulse, and insomnia. Topical garlic can cause skin irritation, blistering, and even third-degree burns, so be very careful about applying garlic directly to the skin.

Since garlic "thins" the blood, it is not a good idea to take high-potency garlic pills immediately prior to or after surgery or labor and delivery, due to the risk of excessive bleeding. Similarly, garlic should not be combined with blood-thinning drugs, such as Coumadin (warfarin), heparin, aspirin, Plavix (clopidogrel), or Trental (pentoxifylline). In addition, garlic could conceivably interact with natural products with blood-thinning properties, such as ginkgo, policosanol, or high-dose vitamin E. Garlic may also combine poorly with certain HIV medications. Two people with HIV experienced severe gastrointestinal toxicity from the HIV drug ritonavir after taking garlic supplements. Garlic might also reduce the effectiveness of some drugs used for HIV. Garlic is presumed to be safe for pregnant women (except just before and immediately after delivery) and nursing mothers, although this has not been proven.

Dosage: A typical dosage of garlic is 900 mg daily of a garlic powder

extract standardized to contain 1.3% alliin, providing about 12,000 mcg of alliin daily. However, a great deal of controversy exists over the proper dosage and form of garlic. Most everyone agrees that 1 or 2 raw garlic cloves per day are adequate for most purposes, but virtual trade wars have taken place over the potency and effectiveness of various dried, aged, or deodorized garlic preparations. The problem has to do with the way garlic is naturally constructed. A relatively odorless substance, alliin, is one of the most important compounds in garlic. When garlic is crushed or cut, an enzyme called allinase is brought in contact with alliin, turning it into allicin. The allicin itself then rapidly breaks down into entirely different compounds. Allicin is most responsible for garlic's strong odor. It can also blister the skin and kill bacteria, viruses, and fungi. Presumably the garlic plant uses allicin as a form of protection from pests and parasites. It also may provide much of the medicinal benefits of garlic.

When you powder garlic to put it in a capsule, it acts like cutting the bulb. The chain reaction starts: Alliin contacts allinase, yielding allicin, which then breaks down. Unless something is done to prevent this process, garlic powder won't have any alliin or allicin left by the time you buy it. Some garlic producers declare that alliin and allicin have nothing to do with garlic's effectiveness and simply sell products without it. This is particularly true of aged powdered garlic and garlic oil. But others feel certain that allicin is absolutely essential. However, in order to make garlic relatively odorless, they must prevent the alliin from turning into allicin until the product is consumed. To accomplish this feat, they engage in marvelously complex manufacturing processes, each unique and proprietary. How well each of these methods work is a matter of finger-pointing controversy.

The best that can be said at this point is that in most of the clinical studies of garlic, the daily dosage supplied at least 10 mg of alliin. This is sometimes stated in terms of how much allicin will be created from that alliin. The number you should look for is 4 to 5 mg of

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"allicin potential." Alliin-free aged garlic also appears to be effective when taken at a dose of 1 to 7.2 g daily.

Contraindications: Blood-thinning drugs such as Coumadin (warfarin), heparin, aspirin, Plavix (clopidogrel), or Trental (pentoxifylline): Do not use garlic except on medical advice. Ginkgo, policosanol, or high-dose vitamin E: Taking garlic at the same time might conceivably cause a risk of bleeding problems. Medications for HIV: Do not use garlic.
