

Stabilized Alliin

Broad Spectrum, Anti-Infective Agent and Premier Biofilm Buster



Never Before Available in History. Stabilized alliin is the result of a patented process which produces purified, living-source, completely stable alliin – for the first time in history. Alliin is *not garlic* – but the fully potent, active factor in concentrated form, never before available. It has broad spectrum, anti-infective properties coupled with strong, immune boosting and immunomodulating capacity. This makes stabilized alliin a **highly significant clinical agent** – especially critical in today's world of widespread infections and with the creation of new forms of superbugs that have emerged due to overuse of antibiotics.

At last, genuine stabilized alliin provides controlled, gentle, yet exquisitely thorough biofilm degradation and destruction - critical to overcoming many chronic illnesses, often recalcitrant to any other means. Many doctors have seen miracles for chronic acne, sinusitis, intestinal dysbiosis, prostate bacterial infections and severe biofilm congestion in many other organs and glands.

The Link of Chronic Diseases to Hidden Infection.

New, stunning worldwide research in the past decade has linked the majority of chronic degenerative diseases, once believed to be due to poor lifestyle choices, genetics or other factors, instead to hidden infections – previously undiagnosed until the recent advent of more sophisticated techniques (such as PCR – polymerase chain technology). For example, kidney stones have now been linked to nanobacterial infection. Over 80% of heart disease has been linked to infection by *Chlamydia pneumoniae*.

How is Stabilized Alliin Made? To produce stabilized alliin, the starting material – healthy, raw garlic bulbs grown in the Pederonas area near Valencia, Spain – are carefully selected to ensure that they contain significant enzyme activity (from alliinase enzymes) so the resulting alliin potency will be optimal. Garlic bulbs under 50 mm wide are rejected as too small; garlic heads that have begun to sprout or appear damaged in any way are also rejected.

Once the bulbs have been selected, they are analyzed for sufficient alliin content using HPLC and mass spectrometry. Next, the garlic is crushed in a special reaction chamber where extra alliin is added to form high amounts of alliin. The system is carefully controlled and kept under constant pressure as the alliin is filtered. The resultant alliin

- Spectacular, broad spectrum, immune-specific support, especially mouth, GI and urinary tracts
- Breakthrough new process delivering pure, stabilized alliin *for the first time in history*
- This is *not garlic* - but the fully potent, active factor in concentrated form, *never available before*
- Premier, living-source extract with high capacity for biofilm destruction and parasite cleansing

liquid is analyzed by HPLC and frozen for transport to a low-temperature dryer. After drying, the powder is tested microbiologically and by HPLC again. No chemical solvents are ever used. The potency of the final powder is directly related to its enzymatic concentration and activity.

A Brief History of Garlic

Garlic may well be one of the most famous of all plants in human history – dating back to use by the pharaohs and many ancient cultures. Garlic has generated interest throughout the centuries as a medicinal panacea. Broad ranges of pathological organisms, including bacteria, fungi, protozoa and viruses have been shown to be sensitive to crushed garlic. Research also shows that garlic can **reduce blood cholesterol** and has **proven anti-cancer effects**. These beneficial effects may be due in part to garlic's unusual concentration of sulfur-containing compounds (1-3%).

For over a century, some of garlic's key sulfur compounds called **allyl sulfides** have been known. However, not until 1944 was the chief, highly anti-infective compound of garlic discovered – an oxygenated sulfur compound named **alliin**, from the Latin name of the plant, *Allium sativum*.

The debate about whether alliin existed in a crushed garlic clove *vs.* its absence in whole, uncrushed cloves was resolved in 1947, when researchers (*Stoll and Seebeck*) found high amounts of an oxygenated sulfur amino acid present in raw garlic cloves (which they named alliin). **Alliin** was found to be the stable precursor that is converted to alliin by the action of an enzyme called **alliinase**, also present in garlic cloves. Although alliin was found to be the stable precursor that is converted to alliin by the action of an enzyme called allinase, also present in garlic cloves. Although alliin has no antimicrobial properties itself, when a garlic clove is crushed, the **alliin is transformed via the alliinase enzymes into the biologically active alliin molecule** - within seconds of crushing a clove.

Garlic cloves are odor-free until crushed. Fascinating cross-section studies show that the substrate, alliin, and the enzyme, allinase, are located in different compartments of the same clove. When the clove is crushed, the alliin and allinase then come in contact with each other to rapidly form alliin. However, the reactive alliin molecules produced have a **very short half-life**, as they react with many surrounding proteins. Thus, consuming *stabilized alliin*

with its unusually high amounts of stable allicin allows for a veritable all-out attack on existing pathogenic organisms for a **superior clinical response** – completely safe and effective — without harmful or toxic side effects.

The Broad-Spectrum, Anti-Infective Properties of Allicin

Stabilized allicin has demonstrated **significant antibacterial, antifungal, larvicidal and antiviral properties**. It has also been shown to **reduce elevated cholesterol and blood pressure** as well as increasing the CD4-T cell count significantly.

Antibacterial Activity of Allicin. Various researchers have shown that garlic extracts exhibit a wide spectrum of antibacterial activity against gram-negative and gram-positive bacteria including species of *Escherichia*, *Salmonella*, *Staphylococcus*, *Streptococcus*, *Klebsiella*, *Proteus*, *Bacillus* and *Clostridium*. Even acid-fast bacteria such as *Mycobacterium tuberculosis* are sensitive to garlic. Research shows that garlic extracts are effective against *Helicobacter pylori*, the cause of gastric ulcers. Garlic extracts can also prevent the formation of *Staphylococcus enterotoxins A, B and C1* and also *thermonuclease*.

Researchers Cavallito and Bailey were the first to demonstrate that the antibacterial action of garlic is mainly due to allicin. Interestingly, allicin has also been proven to be effective against various bacterial strains resistant to antibiotics such as *Methicillin Resistant Staphylococcus Aureus (MRSA)* as well as other multi-drug-resistant enterotoxigenic strains of *Escherichia coli*, *Enterococcus*, *Shigella dysenteriae*, *S. flexneri* and *S. sonnei* cells.

Antifungal Activity of Allicin. Research shows that garlic extracts have a strong antifungal effect and inhibit the formation of *mycotoxins like the aflatoxin of Aspergillus parasiticus*. Another study showed the fungistatic and fungicidal activity of a highly concentrated garlic extract against *Cryptococcus neoformans*. Pure allicin was found to have a high *anti-candidal* activity and was effective against various species of *Candida*, *Cryptococcus*, *Trichophyton*, *Epidermphyton* and *Microsporium*. Allicin inhibited both germination of spores and growth of hyphae.

Antiparasitic Properties of Allicin. Many ancient cultures were aware of the antiparasitic effects of freshly crushed garlic. More recently, Albert Schweitzer, a famous medical doctor and humanitarian, used freshly crushed garlic to treat people suffering from dysentery or intestinal worms. One traditional Chinese medical treatment for intestinal disease is an alcoholic extract of crushed garlic. Recent research shows that allicin is also effective against *Entamoeba histolytica*, a human intestinal protozoan parasite. Stabilized allicin has also very efficiently inhibited the growth of other protozoan parasites such as *Giardia lamblia*, *Leishmania major*, *Leptomonas colosoma* and *Crithidia fasciculata*.

Antiviral Activity of Allicin. Fresh garlic extracts in which allicin has been tested to be the main active component, have shown *in vitro* and *in vivo* antiviral activity, including effectiveness against the *human cytomegalovirus*, *influenza B*, *herpes simplex virus type 1*, *herpes simplex virus type 2*, *parainfluenza virus type 3*, *vaccinia virus*, *vesicular stomatitis virus* and *human rhinovirus type 2*. Stabilized allicin has also been shown to be effective against *Molluscum contagiosum* viral infections. The allicin condensation product, ajoene, appears to have more antiviral activity in general than allicin. Ajoene was found to block the integrin-dependent processes in a human immunodeficiency virus-infected cell system.

Allicin and the Common Cold. The common cold is the most widespread viral infection in the world today. It is estimated that most people will suffer 2 to 5 colds per year. Over 200 different viruses

cause infection and cold symptoms, the most common of which are the rhinoviruses (which account for 30-40% of adult colds). Re-infection is also very prevalent because of this wide variety of infectious viruses.

A “cure” for the common cold could reduce the number of working days lost each year as well as eliminate or significantly reduce the symptoms of cold infections such as fatigue, headaches, runny nose, sneezing, coughing, fever, etc.

In 1985, Hanley and Fenwick reported that during an influenza epidemic in the former Soviet Union, officials imported over 500 tons of garlic cloves for acute treatment of the disease. Research shows that garlic extracts are effective against numerous viruses that cause colds and flu. Evidence points towards allicin and ajoene as the main components responsible for this antiviral activity.

A recent, double blind, placebo-controlled study showed **significant protection from the common cold virus using stabilized allicin**. Further research showed that taking stabilized allicin daily produced quantifiable benefits of prevention, treatment and reduction of re-infection from colds.

Hay Fever (Seasonal Allergic Rhinitis). In another recent study with stabilized allicin, 80% of volunteers reported a significant reduction in their hay fever symptoms.

How does stabilized allicin work?

The broad-spectrum, antimicrobial effects of allicin (and its associated molecule, ajoene) appear to be due to the multiple inhibitory effects on various thiol-dependent enzymatic systems – lethal to the infecting organisms – but without harm to the human host.

Ajoene has a similar oxygenated sulfur group to allicin, which has been shown to inhibit the proliferation of *Trypanosoma cruzi*, possibly by inhibition of its phosphatidylcholine biosynthesis. Ajoene has also been shown to be effective against *Paracoccidioides brasiliensis* via a similar mechanism.

Why not just take regular garlic?

No longer do you need to hope that fresh garlic is rich in allicin, so when it's chopped, the allinase enzymes will react to form allicin. Nor do you need to hope the allicin can get to the target site before it degrades to an ineffective form.

Now, stabilized allicin, a completely stable form, is available which has a proven track record to gently clear harmful pathogens, especially those contained in miniature, multicompartmented cities called biofilms. It is now known that over 99% of all infection in the body live in biofilms.

Look for stabilized allicin, usually 180 mg Vcaps, delivering 54 mcg. highly active allicin per Vcap (or liquid which delivers 30 mcg. per drop). Stabilized allicin is super potent allicin that really works, especially when compared to most other garlic products and extracts on the market which typically contain *no active allicin at all*.

Is there a garlic smell with stabilized allicin?

No. Since stabilized allicin is *not garlic*, but a specific molecule complex from garlic, it has only a very mild, garlic-like taste (if a capsule is opened) and does not leave “garlic breath” when taken.

Note: Stabilized allicin is safe in pregnancy and in children over age 4.

Typical use (adults and children age 4 up): one Vcap (180 mg) with breakfast. For special programs, up to 3 Vcaps, 4 times daily may be taken.

References

- Cavallito, C, Bailey, JH. Allicin, the antibacterial principle of *Allium sativum*. Isolation, physical properties and antibacterial action. *J AM Chem Soc* 66 (1944).
Cellini L, Di Campi B, Masulli M, Di Bartolomeo S, Allocati N. Inhibition of *Helicobacter pylori* by garlic extract (*Allium sativum*). *FEM Immunol Med Microbiol* 13 (1996):273-277.
Elmore, GS, Feldberg, RS. Alliin lyase localization in bundle sheaths of garlic clove (*Allium sativum*). *Am J Bot* 81 (1994): 89-94.
Gonzalez-Fandaz F, Garcia-Lopez M, Sierra M, Otero A. Staphylococcal growth and enterotoxins (A-D) and thermonuclease synthesis in the presence of dehydrated garlic. *J Appl Bacteriol* 77 (1994):549-552.
Huges, EG, Lawson, LD. Antimicrobial effects of *Allium sativum* L. (garlic) *Allium amelopratrum* (elephant garlic) and *Allium cepa* (onion) garlic compounds and commercial grade garlic supplements. *Phytother Res* 5 (1991): 154-158.
Koch, HP, Lawson, LD. Garlic, the science and therapeutic application of *Allium sativum* L. and related species. In: Retford DC (Ed), Williams and Wilkins, Baltimore, 1996, pp.1-233.
Rabinov, A Miron T, Konsrantinovskii L, Wilchek M, Mirelman D, Weiner L. The mode of action of allicin: trapping of radicals and interaction with thiol containing proteins. *Biochim Biophys Acta* 1379 (1998): 233-244.
Yamada, Y, Azuma K. Evaluation of the *in vitro* antifungal activity of allicin. *Antimicrob Agents Chemother* 11(1997):743-749.

Rev. 12/1/04