## **Allium Plus**



7350 SW 60th Ave., Suite 2 Ocala, FL 34476 www.AbsoluteHealthOcala.com





### **Clinical Applications**

- Helps Prevent Overgrowth of Unfriendly Organisms\*
- Supports a Healthy Inflammatory Response\*
- Provides Antioxidant Protection\*
- Supports Healthy Blood Lipid Levels\*
- Helps Maintain Healthy Platelet Function\*
- Promotes Cardiovascular Health\*

**Allium Plus** is a blend of garlic oil and parsley oil containing ajoene and garlic sulfides, the primary bioactive compounds in garlic. These softgels are free of garlic odor because they are enteric-coated, allowing them to reach the small intestine before dissolving. This is unlike other products that dissolve in the stomach, which may result in them repeating on you and causing garlic breath. The parsley oil further helps as a natural breath freshener.

All Absolute Health Formulas Meet or Exceed cGMP Quality Standards

#### Discussion

Allium Plus softgels contain 200 mg of Garlicillin®, a blend of garlic oil and parsley oil with specified levels of garlic sulfides and ajoene, highly bioactive compounds formed from garlic. These softgels are enteric coated to reduce the strong garlic odor and repeating that may occur from supplementing with garlic. The parsley oil further helps as a natural breath freshener. The phytochemistry of garlic is complex, but research shows that garlic's unique organosulfur compounds are responsible for its broad range of health benefits. The best known and studied of these bioactive compounds is allicin. Through its decomposition, allicin breaks down to form a variety of organosulfur compounds, which include garlic sulfides—diallyl sulfide (DAS), diallyl disulfide (DADS), and diallyl trisulfide (DATS) —and ajoene, as found in Allium Plus™ softgels.

**Effects of Ajoene** Ajoene helps with a healthy inflammatory response and with the maintenance of normal platelet function, both of which underlie garlic's well-known role in promoting cardiovascular health. It may also help support healthy cholesterol levels. Ajoene is responsible for many of garlic's other historically recognized effects, such as inhibiting the normal overgrowth of unfriendly organisms, including bacteria, parasites, and fungi (yeast).

*Ajoene & Sulfides* Ajoene (from "ajo," the Spanish word for garlic) is a natural product of allicin degradation in oil, and it is considered one of the most bioactive and stable allicin metabolites.<sup>1, 3</sup> Research studying ajoene showed its ability to inhibit platelet aggregation through various mechanisms—blocking tyrosine phosphatase activity in human platelets, enhancing platelet-derived nitric oxide, and preventing platelets' ability to bind to fibrinogen by interacting with GPIIb/IIIa receptors.<sup>4</sup> The antimicrobial (antibacterial and antifungal) properties of ajoene have received considerable attention. Studies show that ajoene exhibits broad spectrum antimicrobial activity against growth of gram-positive bacteria such as Bacillus cereus, B. subtilis, Mycobacterium smegmatis, Streptomyces griseus, Staphylococcus aureus, and Lactobacillus plantarum.<sup>2,5</sup> Growth of gram-negative bacteria such as Escherichia coli, Klebsiella pneumonia and Xanthomonas maltophilia is also inhibited by ajoene, although at higher doses than for the gram-positive strains.

Ajoene and other garlic extracts were tested in vitro against several viruses, including human Cytomegalovirus, influenza B, Herpes simplex types 1 and 2, Parainfluenza virus type 3, vaccina virus, vesicular stomatitis virus, and human rhinovirus type 2, as well as the common cold virus.<sup>2</sup> Ajoene was found to have the greater virucidal activity than allicin and the other garlic extracts tested.<sup>14</sup> Ajoene also demonstrates chemopreventive properties due to its ability to arrest cancer cell progression, increase tumor suppressor gene expression, inhibit angiogensis and modulating various other genetic pathways that induce cancel cell apoptosis.15 Ajoene has also been shown to target Glioblastoma Multiforme cancer stem cells, as well as, targeting and modifying the vimentin protein in cancer cells which contributes to the anti-metastatic and anti-proliferative effects of this garlic derivative.<sup>6-7, 8-11</sup>

*Garlic Sulfides* A meta-analysis of RCTs showed that supplemental administration of garlic significantly lowered fasting blood glucose, plasma fructosamine, and hemoglobin A1c compared to the controls leading researchers to conclude that these garlic-derived sulfur compounds may benefit patients with diabetes-related vascular complications.<sup>12</sup>



# **Supplement Facts**

Serving Size 1 softgel

Amount Per Serving

% Daily Value

Garlicillin™

200 mg

[Garlic oil (Allium sativum)(bulb) and parsley oil (Petroselinum crispum)(seed) blend containing 20 mg garlic diallyl sulfide, diallyl disulfide, diallyl trisulfide and ajoene]

Daily Value not established.

Other Ingredients: Olive oil, bovine gelatin, glycerine, purified water, yellow beeswax, pharmaceutical glaze, sunflower lecithin, sodium alginate, annatto (color).

#### **Directions**

Take 1 casule daily, or as directed by your healthcare provider.

#### Caution

If you are pregnant or nursing, consult your physician before taking this product. Consult provider if you are taking blood thinners

#### **Does Not Contain**

Gluten, corn, yeast, artificial colors, and flavors.



#### References

- 1. Silva, F., Khokhar, S. S., Williams, D. M., Saunders, R., Evans, G., Graz, M., & Wirth, T. (2018). Short total synthesis of ajone. Angewandte Chemie (International ed. in English), 57(38), 12290–12293. doi:10.1002/anie.201808605
- 2. Hussein, H., Hameed, I., & Hadi, M. (2017). A review: anti-microbial, anti-inflammatory effect and cardiovascular effects of garlic: Allium sativum. Research Journal of Pharmacy and Technology, 10(11), 4069-4078. Retrieved from: https://www.researchgate.net/profile/lmad\_Hameed/publication/322909963 A Review Antimicrobial Antiinflammatory effect and Cardiovascular\_effects\_of\_Garlic\_Allium\_sativum/links/5aa171d30f7e9badd9a43e9d/AReview-Anti-Microbial-Anti-inflammatory-effect-and Cardiovascular-effects-of-Garlic-Allium-sativum.pdf
- Roa, P.S., Middle, N. M., Miller, D. D., Chauhan, S., Kumar, A., & Kumar, S. (2015). Diallyl sulfide: Potential use in novel therapeutic interventions in alcohol, drugs, and disease mediated cellular toxicity by targeting cytochrome P450 2E1. Current Drug Metabolism, 16(6), 486–503. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4663692/
- 4. Nasri H. Impact of garlic extract on platelet function and structure. Annals of Reseach in Platelets, 1(1). Retrieved from: http://annresantioxidants.com/index.php/ARP/article/viewFile/262/234
- Loi, V. V., Huyen, N. T., Busche, T., Tung, Q. N., Gruhlke, M. C., Kalinowski, J., Bernhardt, J., Slusarenko, A. J., & Antelmann, H. (2019). Staphylococcus aureus responds to allicin by global S-thioallylation Role of the Brx/BSH/YpdA pathway and the disulfide reductase MerA to overcome allicin stress. Free Radical Biology and Medicine, 139, 55-69. https://doi.org/10.1016/j.freeradbiomed.2019.05.018.
- Jung, Y., Park, H., Zhao, H. Y., Jeon, R., Ryu, J. H., & Kim, W. Y. (2014). Systemic approaches identify a garlic-derived chemical, Z-ajoene, as a glioblastoma multiforme cancer stem cell-specific targeting agent. Molecules and cells, 37(7), 547–553. doi:10.14348/molcells.2014.0158
- 7. Kaschula, C. H., Hunter, R., Cotton, J., Tuveri, R., Ngarande, E., Dzobo, K., & Parker, M. I. (2016). The garlic compound ajoene targets protein folding in the endoplasmic reticulum of cancer cells. Mol. Carcinog., 55, 1213-1228. doi:10.1002/mc.22364
- 8. Cao, H. X., Zhu, K. X., Fan, J. G., & Qiao, L. (2014). "Garlic-derived allyl sulfides in cancer therapy. Anti-Cancer Agentsin Medicinal Chemistry 4. https://doi.org/10.2174/1871520614666140521120811
- Jayrah, R., & Lal, R. (2017). Medicinal importance of allicin A bioactive component from Allium sativum L (garlic). Sahdeo Prasad & Amit Kumar Tyagi (Eds.), Cancer preventive and therapeutic compounds: gift from mother nature (20-31). Sharjah, UAE: Bentham Science Publishers.
- 10. Xu, L., Yang, M., Zhao, T., Jin, H., Xu, Z., Li, M., & Chen, H. (2014). The polymorphism of CYP2E1 Rsa I/Pst I gene and susceptibility to respiratory system cancer: a systematic review and meta-analysis of 34 studies. Medicine, 93(27), e178. doi:10.1097/MD.0000000000000178
- Kaschula, C. H., Tuveri, R., Ngarande, E., Dzobo, K., Barnett, C., Kusza, D., Schäfer, G. (2019). The garlic compound ajoene covalently binds vimentin, disrupts the vimentin network, and exerts anti-metastatic activity in cancer cells. BMC Cancer 19(248). https://doi.org/10.1186/s12885-019-5388-8
- 12. Liu, Y., Zhao, Y., Wang, Y., Zhu, P., Wei, Z., Wang, S. ... Lu, Y. (2017). Suppressive role of diallyl trisulfide in the activated platelet-mediated hematogenous metastasis of MDA-MB-231 human breast cancer cells. International Journal of Molecular Medicine, 39, 1516-1524. https://doi.org/10.3892/ijmm.2017.2953