

# Physiologically Beneficial Actions of Alliin in Health and Disease

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## Background

Garlic has been considered to have medicinal properties in different cultures since ancient times. Vegetables of the allium genus are a natural source of sulfur-containing organic compounds. These compounds have recently been investigated for their positive health effects, such as antioxidant and anti-inflammatory, as well as cardioprotective and anticarcinogenic properties.

## Objective

In this review, we focus on one of the main components of garlic; alliin or S-allyl-L-cysteine sulfoxide, which is a non-protein amino acid that exhibits a broad spectrum of beneficial effects on physiology, both at the cellular and whole organism levels.

## **Methods**

We conducted a systematic literature search of the MEDLINE (PubMed) database. Search terms used for alliin were: “S-allylcysteine sulfoxide” OR “L-alliin” OR “ACSO”, all of them combined into a separated search term individually as follows: AND “antioxidant”; AND “cardioprotective”; AND “anti-inflammatory”; AND “antimicrobial”; AND “disease”, and; AND “neuroprotective”.

## **Results**

Here, we review and integrate the existing experimental evidence on the effects of alliin, mainly on its antioxidant and anti-inflammatory effects, as well as its cardioprotective action, and its role as an adjuvant for the treatment of different diseases, such as infectious diseases, inflammatory diseases, metabolic diseases and cancer.

## **Conclusion**

Finally, we propose alliin as a possible neuroprotective agent, through the combination of its antioxidant and anti-inflammatory effects, and its ability to reduce markers of metabolic inflammation in obesity.

**Keywords:** Garlic, S-allyl cysteine sulfoxide, nutraceutical, neuroinflammation, antioxidant, disease.