

# Review of Toxicity of Allicin From Garlic



**Kehinde Alare<sup>1\*</sup> and Taiwo Alare<sup>2</sup>**

<sup>1</sup>Department of Medicine, Ladoke Akintola University of Technology, Nigeria

<sup>2</sup>Department of Mechanical Engineering, Federal University of Technology, Nigeria

**Submission:** October 30, 2020; **Published:** December 06, 2020

**\*Corresponding author:** Kehinde Alare, Department of Medicine, Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria

## Abstract

Allicin components of garlic has been helpful medicinally but adverse effects has been noticed with excessive usage of garlic supplements. The toxicity of the garlic supplements as been carefully reviewed in this article. These toxicities has been linked to it's effects and autonomic nervous system and its bactericidal functions. These research also encouraged usage of allicin supplements pills with regulated dosage to garlic concoction taking in most African communities.

## Introduction

Recent studies have shown increase usage of garlic in local herbal medics for different purpose, according to Alare many side effects were recorded in different patient using garlic herbal concoction [1] in our community. This article critically reviews the toxicity involved in the over usage of garlic in order to enlighten the reader on the side effects associated with excessive usage of garlic. This article does not annul the medicinal importance of garlicks that has been highlighted in other researches but we it's known that the thin line between drugs and toxins is the dosage. Some effects of this toxicity may not necessarily be lethal but alters the normal physiological conditions in patients.

## Mechanisms of Toxicity

Mechanism of toxicity of garlic can be traced to its pharmacological active component allicin which is gotten from the metabolism of alliin present in garlic [2]. Allicin being an organosulfur compounds is found to act as a broad spectrum antibiotics [3] having bactericidal effects on both gram-negative and gram-positive bacteria therefore excessive usage can lead to killing of normal body's floral causing colonization of the body by foreign microbes. Although side effects of superinfection due to usage of garlic were not recorded in Alare [1] but we strongly believe that excessive usage of garlic might lead to infections and even septicemia if proper measures not taking. The other and major mechanism of toxicity of allicin is similar to that of organophosphate compounds found in certain plant, this is due of the effect of allicin has on autonomic nervous system due to

it's inhibiting activities on cholinesterase thereby making act as an indirect acting muscarinic agonist . When in excess toxicity of cholinergic receptor agonist set in which includes miosis, salivation, sweating, bronchial constriction, vomiting, diarrhea, cognitive disturbances, convulsion and coma [4]. This toxicity is as result of the parasympathetic effects of allicin, diarrhea and hyper-defecation as reported in subjects [1] was as a result of parasympathetic stimulation of the gastrointestinal tract leading to increase GI contractility and movements lead to increase number of toilet visits in patient and this may result in hydration and also hypovolemic shock. Bronchoconstriction may be very lethargic in asthmatic patient using allicin supplements, the effects on the central nervous is due to excess acetylcholine that's not breakdown by cholinesterase. Some patients experience acute bradycardia and loss of consciousness [1] after excessive intake of garlic concoction over a long period of time, this is due to excessive parasympathetic stimulation on the heart leading to reduced heart rate and reduced force of contraction of the heart thereby reducing the cardiac output . The reduction in cardiac output also lead to reduced blod supply to the brain which could be very lethal as it is evidence as loss of consciousness and syncope. The toxicity of allicin on the autonomic nervous system can be reverted by parenteral administration of atropine.

## Conclusion

Toxicity of allicin in garlicks comes with excessive usage and some side effects are also highlighted so that patient could attribute these changes to usage of garlic concoction and this

will greatly help in the proper management of these toxicities because misdiagnosis could be sometimes fatal. This research also encourages usage of allicin supplement pills rather than

garlic concoction because of dosage will be regulated with that to avoid toxicity.

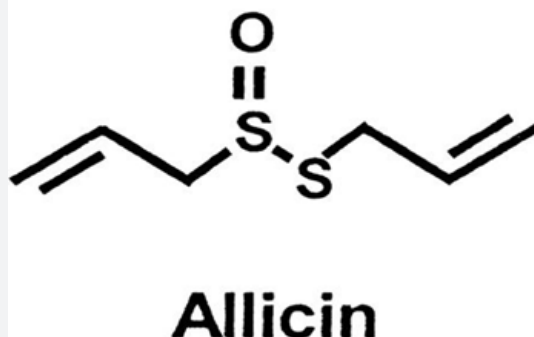


Figure 1: Mechanisms of toxicity.

### Acknowledgement

We acknowledge the following colleagues for their impact the collation of this review, Busayo Adetunji, Tope Odunitan, Samson Afolabi, Oladoja Owonikoko and all our teachers.

### References

1. Alare K, Alare T, Luviano N (2020) Medicinal Importance of Garlic and Onions on Autonomic Nervous System. *Clin Pharmacol Biopharm* 9(4): 204-206.

2. Block E, Naganathan S, Putma D, Zhao S (1993) *Organosulfur Chemistry of Garlic and Onion: Recent Results*. *Pure and Applied Chemistry* 65(4): 625-632.

3. Leontiev R, Hohaus N, Jacob C, Martin Gruhlke CH, Alan Slusarenko J (2018) A Comparison of the Antibacterial and Antifungal Activities of Thiosulfinate Analogues of Allicin. *Sci Rep* 8: 6763.

4. Katzung BG (2018) *Basical & Clinical Pharmacology*. (14<sup>th</sup> edn.), Mc Graw Hill, USA, pp. 121.



This work is licensed under Creative Commons Attribution 4.0 License  
DOI: [10.19080/OAJT.2020.04.555647](https://doi.org/10.19080/OAJT.2020.04.555647)

### Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats  
( Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>