

# Inhibitory Effects of Allicin on Escherichia coli DH5(ALPHA) Growth

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This project explores the effectiveness of allicin in *Allium sativum* (garlic) and *Allium cepa* (onion) in preventing the growth of *Escherichia coli* DH5a. The allicin in *Allium sativum* is one of the active principles of freshly crushed garlic. It has a variety of antimicrobial activities. A wide range of microorganisms including bacteria, fungi, protozoa and viruses have been shown to be sensitive to freshly crushed garlic. *Allium cepa* has been found in-vitro to be an effective antimicrobial substance against a wide array of microorganisms. It was hypothesized that if an *Escherichia coli* colony is left to grow in the nutrient agar, then the presence of *Allium sativum* will be able to kill the growth of bacteria more effectively than *Allium cepa*. Published laboratory studies have found that allicin in garlics: enhances the activity of phagocytic cells; enhances the activity of natural killer cells; inhibits the growth of pathogenic micro-organisms; and inhibits the growth of certain cancer cells. However, allicin produced by onion are short-lived. 40 agar plates were tested with 8 groups of 5 petri dishes. A 1:100 dilution of *E.coli* was plated in seven groups with garlic extract in three groups and onion extract in three groups. Based on the results, the petri dishes with *Allium sativum* extracts proved to have more efficient antimicrobial properties than *Allium cepa*. As the percentages of garlic extracts increase, the growth of *E.coli* decreases dramatically. The inhibitory effects of allicin from *Allium cepa* is not as effective as allicin from *Allium sativum* on the growth of *E.coli* DH5a.

**Awards Won:**

