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

Li, Jessica

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 Alliium 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.

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