The Effects of Prebiotics and Probiotics on the Growth and Antibiotic Resistance of Escherichia coli

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As antibiotic resistance increases to 70% by 2050, science is looking for new solutions to bacterial infections. As presented recently, the balance of bacteria in the microflora is a prevention method for intestinal tract infections and diseases. A new field of interest, the use of probiotics as a treatment, has arisen. In this study, the inefficacy of Penicllin G was highly suggested because it had no zone of inhibition against Escherichia coli. Also, Alcaligenes faecalis, Lactobacillus acidophilus, Lactobacillus bulgaricus, and Lactobacillus casei were investigated to inhibit and compete with Escherichia coli. The probiotics were able to significantly inhibit the growth of Escherichia coli, which is of concern because an unhealthy gut suffering from Leaky Gut Syndrome (LGS) is susceptible to the passage of Escherichia coli from the gut to the bloodstream. Prebiotics, indigestible carbohydrates that can be fermented by probiotics for energy, were combined with the aforementioned probiotics to examine inhibition of Escherichia coli. The addition of prebiotics significantly increased the inhibition of Escherichia coli. In sum this project highly suggests the efficacy of probiotics and more specifically those enhanced with prebiotics against Escherichia coli, a possibly harmful bacteria of the gut flora, when compared to the inefficacy of antibiotics.

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