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*Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas  
Fluorescens Biofilm*

Bacteria, it's everywhere. Whether we realize it or not, bacteria poses a huge part of our everyday lives. It's the plaque on teeth and the scum that makes rocks in a stream slick. There are multiple strains of bacteria, both beneficial and harmful. Even though there are some types we cannot live without, there are others which are hard to live with. This can be difficult since they reproduce so rapidly and have the ability to mutate and become resistant. Due to their rapid reproduction, some strains of bacteria can form a layer of slime known as biofilm. Unique to biofilm, there is a coat called an exopolysaccharide matrix which secretes a slime that biofilm cannot survive without. The question is, can you effectively inhibit the growth and/or formation of Pseudomonas Fluorescens biofilm in the body without altering normal pH levels and dissolved oxygen content using various solutions of proteolytic enzymes as well as other digestive enzymes? I hypothesized that enzymes will affect the growth of biofilm and that Serrapeptidase/Glucoamylase will have the greatest impact. I tested this by treating blood with enzymes and measuring pH and dissolved oxygen content after 15 hours. I determined the growth and decay of biofilm by growing Pseudomonas Fluorescens biofilm on blood agar, treating them with enzymes, and estimating the affected area. According to the results I obtained, my hypothesis was correct in enzymes being able to treat biofilm. However, Serrapeptidase/Glucoamylase did not show the greatest affect, but rather Serrapeptidase did.