The Zone of Inhibition in Streptococcus mutans and Streptococcus oralis using Antibacterials

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The purpose of this experiment was to determine what chemical best inhibited the growth of the oral bacterium Streptococcus mutans and Streptococcus oralis. These bacteria produce biofilms and enamel eroding acids that cause cavities, so it's important to know what best kills the bacterium to prevent oral issues. This experiment tested 6 chemicals against the bacterium, Carbamide Peroxide, Chlorhexidine Gluconate, 0.25% Sodium Fluoride, and Peppermint, Lavender, and Tea Tree Essential Oils. The three chemicals tested are all found in toothpastes or mouthwashes, while the essential oils used are known to have antimicrobial properties. It was hypothesized that Carbamide Peroxide would best inhibit the growth of the bacterium. Both strains of bacteria were plated onto two different plates, Mueller Hinton Agar Plates and Sheep's Blood Agar Plates. 7mm pieces of filter paper soaked in the different antibacterials were placed onto the agar plates. The plates were then placed in an incubator at 35? for 24 hours. The zone of inhibition was measured for each chemical. It was found that the hypothesis was partially correct, because Carbamide Peroxide was the best inhibitor of Streptococcus mutans and Streptococcus oralis on the Mueller Hinton plates at average inhibitions of 46mm(S. mutans) and 36.67mm(S. oralis). Although, Carbamide Peroxide was not the best inhibitor of bacteria on the Sheep's Blood plates, coming in second to Chlorhexidine Gluconate. This experiment shows that the best two inhibitors of growth of Streptococcus mutans and Streptococcus oralis are Carbamide Peroxide and Chlorhexidine Gluconate.

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