Novel Antibacterial Compounds for Oral Care

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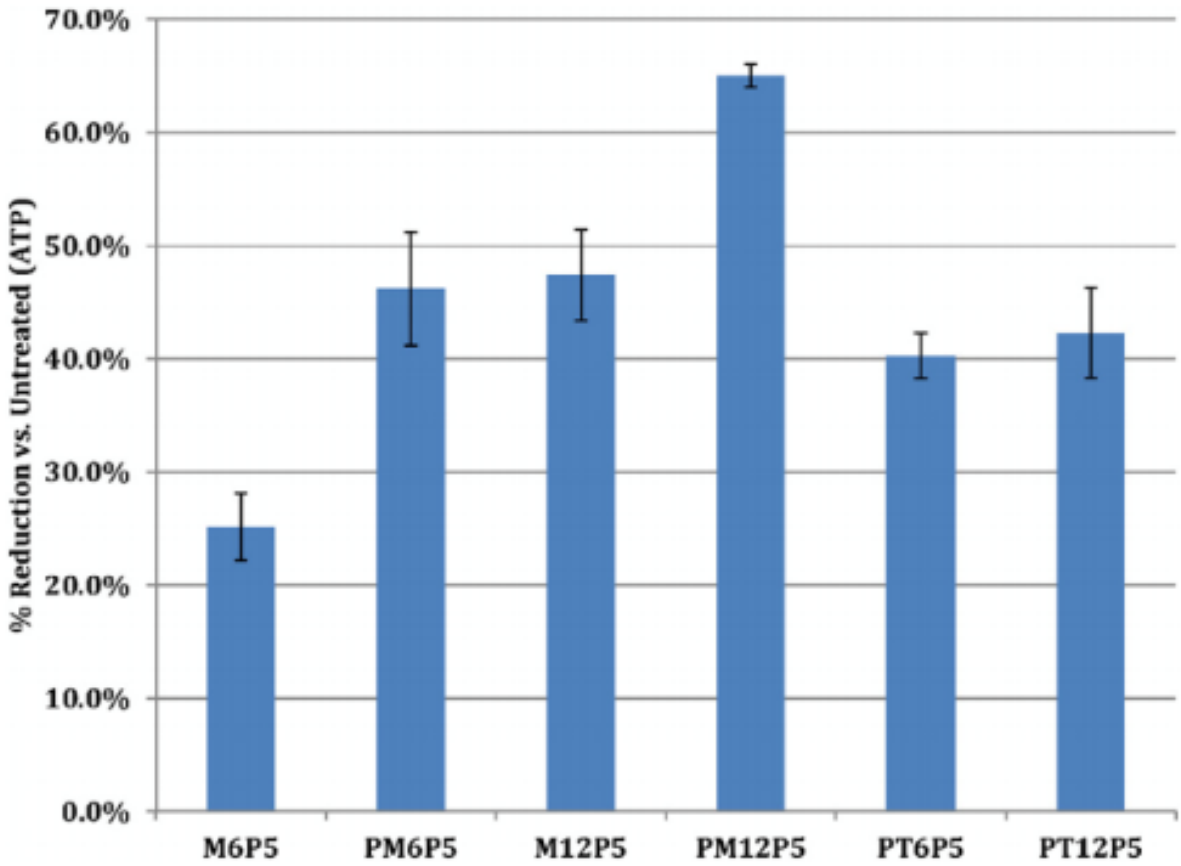
Technology description



Effect of CAM reduction in bacterial attachment to hydroxyapatite-coated surfaces relative to control with 100% attachment (i.e. 0% reduction)

Invention Summary:Periodontitis and caries are common oral diseases caused by enamel demineralization due to bacterial adhesion to teeth. Introducing a layer to the surface of teeth can inhibit bacterial adhesion and prevent these oral ailments. Water-soluble, acid-stable, linear polymers are commonly used in oral care products to prevent bacterial attachment to teeth. However, current products are not efficiently adsorbed on teeth enamel.Rutgers researchers have developed cationic amphiphilic molecules (CAMs), with the lead molecule designated P-M12P5, that prevent bacterial attachment and exhibit: (1) strong adherence to dental enamel even after rinsing, (2) greater hydrophobic coating surface on enamel and (3) efficacy against gram-positive bacteria such as Streptococcus oralis and Actinomyces viscosus that reside and are first to colonize the oral cavity.

The adsorption of the CAM onto hydroxyapatite-coated surfaces, mimicking teeth enamel, was investigated as a function of time using Quartz Crystal Microbalance with Dissipation monitoring (QCM-D). The ability for the CAM to prevent bacterial attachment has been evaluated in vitro using bacterial repulsion assays.Market

Application area

Oral hygiene products, such as tooth paste and mouth wash

Advantages

Compatible with human tooth enamel
Strong adherence to dental enamel after rinsing
Efficacy against common oral bacteria

Institution

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