

Assessment of Efficacy and Effectiveness of Antiseptic Mouthwash Products against Oral Microbiota

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Mouthwashes help prevent dental caries, gum disease (such as gingivitis), slow down the buildup of plaque (biofilms formed by buccal microbiota) and help fight bad breath (halitosis). These antibacterial products kill bacteria, or hinder their reproduction. Some antiseptic products inhibit growth and reproduction of many microorganisms, including bacteria, as well as fungi, protozoa, and viruses. Mouthwashes that kill or reduce bacterial load in the buccal cavity can reduce the production of sulfur compounds that can cause bad breath. Common ingredients in mouthwashes include cetylpyridinium chloride (CPC), zinc chloride, alcohol and chlorhexidine which can neutralize sulfur compounds as well as kill bacteria. Our main objective in this project is to assess the efficacy and effectiveness of different mouthwash brands with a view to give scientifically sound advice people on the best products for use. Our goal for this research is to test commonly used mouthwash brands. Our methods involve culturing of mixed culture of known microbes (and at a later stage from our own mouths when we get IRB approval), streaking these out onto Petri agar plates to isolate pure cultures, characterizing the isolates and testing the efficacy of the mouthwashes against the isolates. Isolates from each subject are kept on slants of agar medium as pure stocks from which we can further characterize the isolates and how they are affected by the detergents. Spread plates inoculated with comparable microbial densities, based on optical density as measured by the spectrophotometer, will be used to assess the efficacy of individual mouthwash brands on the isolates. Efficacy will be determined based on the size of zone of growth inhibition around blank antibiotic discs soaked in the mouth wash brands under study. Mouthwash brands with the greatest diameters will be considered most efficacious. We will also characterize whether the mouth washes are simply bacteriostatic or bactericidal.