Bacterial Pathogens Controlled by EcoProven Anti-Viral Mouthwash and the Diseases that they Cause

Streptococcus pyogenes

- Test agent showed greater than 99.999986% antimicrobial activity against Streptococcus pyogenes.

Streptococcus pyogenes is a **MAJOR** human-specific bacterial pathogen that causes many types of infections including acute rheumatic fever, post-streptococcal glomerulonephritis, necrotizing fasciitis and toxic shock syndrome that is associated with and high morbidity and mortality. Infections caused by *S. pyogenes* are highly contagious. Transmission can occur through airborne droplets, hand contact with nasal discharge or with objects or surfaces contaminated with bacteria, skin contact with contaminated lesions, or contaminated food sources. Severe *S. pyogenes* infections is 18.1 million cases (1.78 million new cases / year), RHD is at least 15.6 million cases (282,000 new cases / year), with approximately 233,000 deaths / year. There are approximately 663,000 new cases of invasive GAS disease with 163,000 deaths per year. 616 million cases of sore throat infection worldwide per year can be attributed to *S. pyogenes and* 111 million cases of skin infection in children of developing countries. In the US, 15% - 30% of cases of pharyngitis in children and 5% - 20% pharyngitis in adults are due to S. pyogenes.

Escherichia coli 0157

- Test agent showed up to 84.169192% antimicrobial activity against E. coli (0157:H7).

This particular strain of E. coli known as E. coli O157:H7 causes a severe intestinal infection in humans. It is the most common strain to cause illness in people. It causes a potent toxin that damages the lining of the intestinal wall causing bloody diarrhea. It is also known as enterohemorrhagic E. coli infection. The US CDC estimates 70,000+ cases of E.coli infections in the US each year in which the symptoms may range from mild stomach ache to life threatening when an

individual's red blood cells are destroyed and the kidneys stop working.

Streptococcus mutans

- **Test agent showed up to 74.713622% antimicrobial activity against Streptococcus mutans**.

“The group of "mutans streptococci" was described as the most important bacteria related to the formation of **dental caries** (tooth decay & cavities). Streptococcus mutans, although naturally present among the human oral microbiota, is the microbial species most strongly associated with carious lesions. https://pubmed.ncbi.nim.gov

"Dental caries and dental plaque are among the most common diseases worldwide, and are caused by a mixture of microorganisms and food debris. Specific types of acid-producing bacteria, especially Streptococcus mutans, colonize the dental surface and cause damage to the hard tooth structure in the presence of fermentable carbohydrates e.g., sucrose and fructose.

S. mutans gives its name to a group of seven closely related species collectively referred to as the mutans streptococci. The primary habitats for S. mutans are mouth, pharynx, and intestine [11]. Several factors, such as adherence to enamel surfaces, production of acidic metabolites, the capacity to build up glycogen reserves and the ability to synthesize extracellular polysaccharides are present in dental caries [11,12]. S. mutans and Streptococcus sobrinus have a central role in the etiology of dental caries [1,13], because these can adhere to the enamel salivary pellicle and to other plaque bacteria [6]. Mutans streptococci and lactobacilli are strong acid producers and hence cause an acidic environment creating the risk for cavities [14]. Usually, the appearance of S. mutans in the tooth cavities is followed by caries after 6-24 months."

copied from the NIH website - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3257652/