INGREDIENTS

For the past several decades, nonpathogenic bacteria called probiotics have been added to food products because of their beneficial effect to human health.1,2 Their primary use in modern medicine has focused not only on the management of the intestinal tract problems but also on oral health.3 The name probiotic is derived from Greek, meaning “for life.” Probiotics are microorganisms proven to promote health in humans and animals. In 1994, the World Health Organization (WHO) stated probiotics are the next most important immune defense system for controlling antibiotic resistant microorganisms. In 2001, the Food and Agricultural Organization of the United Nations (FAO)/WHO defined probiotics as “live microorganisms, when administered in adequate amounts, confer a health benefit to the host.”4,5,6,7

Streptococcus salivarius (S. salivarius) is a primary and predominant colonizer of oral mucosal surfaces in humans and does not initiate infections in healthy individuals. S. salivarius commonly produce bacteriocin-like inhibitory substances (BLIS).8

BLIS has been shown to be beneficial as an oral health-enhancing probiotic.9,10 Doctor’s Best Oral Probiotic is a clinically tested probiotic that supports both oral and upper respiratory tract health.11

S. salivarius, strain BLIS K12®, has received GRAS (Generally Recognized As Safe) status from the United States Food and Drug Administration (FDA) enabling probiotic BLIS K12® to be used as food additive meaning that BLIS K12® has been given the “gold standard” for food ingredient safety.12 Several clinical trials were done to demonstrate its safety as an oral dietary supplement in supporting general oral health.9,13,14,15

BENEFITS

• Doctor’s Best Oral Probiotic helps support the oral and upper respiratory health*
• Doctor’s Best Oral Probiotic helps support throat health*
• Doctor’s Best Oral Probiotic helps support health of the mouth
• Doctor’s Best Oral Probiotic helps reduce bad breath (halitosis)*
• Non-GMO, Soy Free, Gluten Free. Vegetarian

EXTENDED BENEFITS

Doctor’s Best Oral Probiotic helps support oral health*

The oral cavity is a complex ecosystem of the human body. It consists of more than 700 bacterial species and is a major hub where various biological and metabolic activities are taking place involving different elements like nutrient availability, salivary fluids, shedding and non-shedding surfaces and, broad range of pH. Nevertheless, there is a kind of homeostasis in balance in the oral cavity with the host. Any change in the oral cavity environment could disturb this homeostasis and lead to infections affecting the health of the mouth, ear, nose and throat. Probiotics are living microorganisms that are safe for consumption and have been proven to be beneficial for oral health.9,16,17 The mechanism of action of probiotics in oral health is by direct (direct interaction on dental plaque and helps reduce plaque formation by competing with bacterial attachment on the tooth surface) and indirect mechanisms (modulate immune system).16,17

It has been demonstrated that the bacteriocin-producing Streptococcus salivarius strain K12 may help reduce plaque-forming and halitosis-causing bacteria.18 Bacteriocin-producing S. salivarius strains have also shown promise in controlling S. pyogenes-associated pharyngitis.19

Doctor’s Best Oral Probiotic helps support healthy ears, nose, and throat*

S. salivarius naturally colonizes the mouth within a few hours of birth, and thus allowing later exposure to these particular bacteria to be harmless. The acronym BLIS (for bacteriocin-like inhibitory substance) refers to the uncharacterized inhibitory agents that appear to have “bacteriocin-like” activity. The K12 strain of S. salivarius is a highly potent BLIS-producer, producing both antibacterial peptides Salivaricin A (bacteriostatic) and

Other Ingredients: Mannitol powder, baker’s sugar, natural strawberry flavor, croscarmellose sodium, stearic acid, magnesium stearate (vegetable source), citric acid, luo han guo extract.

Contains Milk

Suggested Adult Use: Chew 1 tablet daily with or without food, or as recommended by a nutritionally-informed physician.

Non-GMO / Gluten Free / Soy Free / Vegetarian

Store in a cool dry place.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.
Salivaricin B (bactericidal), was shown to killed isolates of Streptococcus pyogenes. Products utilizing bacteriocins have been advocated for oral care. Indeed, the streptococci are significant producers of bacteriocins and specifically, S. salivarius K12® has been recommended as an oral probiotic. BLIS K12® produces two protective peptides - Salivaricin A and Salivaricin B, which help promote a healthy bacteria, thus helping support ears, nose and throat health.*

Bacteriocins are extracellular proteins with bactericidal activities that are produced by some lactic acid bacteria during their growth. They are Gram-positive-specific and their activity is not inhibited by human digestive enzymes or pH changes. BLIS K12® produces two bacteriocins: Salivaricin A and Salivaricin B. Salivaricin A is specific to S. salivarius K12 and acts against gram-positive bacteria such as S. mutans and S. mitis, which are known to cause dental caries, whereas Salivaricin B is specific to S. salivarius K12 and acts against gram-negative bacteria such as P. aeruginosa and E. coli, which are known to cause respiratory infections.

Another study that examined the health responses of human volunteers to oral ingestion of high doses of S. salivarius K12 demonstrated that the daily ingestion of S. salivarius K12 has no adverse effect on the human host and supports the safety of its oral delivery in a food-based carrier.*

A study was conducted to determine whether dosing with bacteriocin-producing Streptococcus salivarius following an antimicrobial mouthwash affects a change in oral malodour parameters and in the composition of the oral microbiota of subjects with halitosis. The outcome of this preliminary study indicated that the replacement of bacteria implicated in halitosis by colonization with competitive bacteria such as S. salivarius K12 may provide an effective strategy to reduce the severity of halitosis.*

In a study aimed to assess whether Streptococcus salivarius K12 dispersal and persistence in the human oral cavity could be monitored showed that S. salivarius K12 could be detected on the mucosal membranes for as long as 3 weeks, but with steadily decreasing numbers after day 8. Thus, S. salivarius K12 may have the potential to support oral health when the uptake is repeated frequently.*

In a pediatric clinical study, the oral probiotic S. salivarius K12 was evaluated for its efficacy in reducing the incidence of streptococcal infections in the oral cavity and ears. Enrolled children were put into 2 groups: the placebo group included untreated children and the treated group included children that received a slow-release tablet containing 5 billion colony-forming units of S. salivarius K12. Results showed a reduction of reported incidence of oral cavity infections and children tolerated the product very well with no side effects. They concluded that the use of S. salivarius K12 could have positive effects on supporting healthy throat and ear in children.*

Streptococcus salivarius K12 has been shown to inhibit the growth of Streptococcus pyogenes due to bacteriocins release. Because of its ability to colonize the oral cavity, a randomized placebo-controlled study was conducted to evaluate S. salivarius K12 for its efficacy in helping with streptococcal pharyngitis and/or tonsillitis in adults. Results showed a reduction in the episodes of streptococcal pharyngeal infection (about 80%). The 90 days treatment was also associated with an approximately 60% reduction in the incidence of reported pharyngitis in the 6-month period following use of the product. The product was well tolerated by the subjects with no treatment-related side effects reported. They concluded that the administration of Streptococcus salivarius K12 to adults with a history of recurrent oral streptococcal pathology reduced the number of episodes of streptococcal pharyngeal infections hence helps to support oral health.*

In a randomized placebo-controlled study, the effect of 1 billion colony-forming units/tablet of S. salivarius K12 on streptococcal infection was evaluated in children. Results showed that the uptake of S. salivarius K12 was well tolerated with no side effects in children who received the product. There was a significant reduction in their episodes of streptococcal pharyngeal infection. Also, the number of days under antibiotic treatment of the treated and control groups were 30 and 900 respectively, days under antipyretic treatment 16 and 228, and days of absence from school 16 and 228. They concluded that S. salivarius K12 was beneficial in children with a history of recurrent oral streptococcal problems resulted in a considerable reduction of episodes of both streptococcal and viral infections and reduced the number of days under antibiotic and/or antipyretic therapy and days of absence from school.*

The effect of S. salivarius K12 in children with ear problems (fluid in the middle ear cavity) was evaluated as well as compliance and probiotic tolerability and side effects in a pediatric study. Results indicated a good safety profile, a substantial reduction of ear ache episodes, and a positive outcome from the treatment for all of the clinical outcomes tested. They concluded that S. salivarius K12 may have a positive role supporting ear health in children.*

A study goal was to assess through a retrospective observational analysis whether the administration of the oral probiotic, Streptococcus salivarius K12 could reduce the occurrence of group A beta-hemolytic streptococci (GABHS) pharyngo-tonsillar infections in children who had a recent history of recurrent episodes of these infections. A total of 130 children who had experienced recent GABHS pharyngo-tonsillar infections were divided into 2 groups: treated with daily intake with Streptococcus salivarius K12 and untreated. Results showed that even 9 months after the use of Streptococcus salivarius K12 had been stopped, the probability of new GABHS infections was significantly lower (P<0.001). When compared to the untreated children, those taking Streptococcus salivarius K12 appear to have had significantly fewer GABHS infections. These observations are supportive of the use of probiotic Streptococcus salivarius K12 for supporting healthy oral care.*

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