

Beneficial effects of *Lactobacillus sp.* against *Streptococcus mutans*

(poster presenter)

Spase Stojanov

Darinka Gjorgieva Ackova, Katarina Smilkov

Faculty of Medical Sciences, Goce Delcev University, Štip, R. Macedonia

Contact: spase.151134@student.ugd.edu.mk

Probiotics are known for their beneficial effects to health and their action is often linked to the GI health. Oral health is owed to the ecological balance in the oral cavity, still considering the pathogen *Streptococcus mutans* primarily responsible for initiating dental caries and tooth decay, as well as periodontal disease. Studies have shown that different *Lactobacillus* species can exert beneficial effects in oral health as well as GI health.

The main goal of this research is to examine the reported positive effect of *Lactobacillus* against oral diseases, caused by *S. mutans*.

Several studies have shown that co-culture of *S. mutans* with different *Lactobacillus* strains significantly reduced the numbers of *S. mutans* and total bacteria in the mixed biofilm cultures compared with the control group. Different *Lactobacillus* strains have varying inhibition activity against *S. mutans*. In one study, it has been shown that *Lactobacillus acidophilus* has a reducing power to gene expression, and reduced the expression of the genes *GtfB* and *LuxS* by 60-80%. Another study showed that the lipoteichonic acid of the *Lactobacillus plantarium* is responsible for the antibacterial effect of the probiotics against oral pathogens. Namely, the biofilm formation from *S. mutans* in the presence of lipoteichonic acid was evaluated by using confocal laser scanning microscopy and scanning electron microscopy. The results of the study showed that *S. mutans* biofilm formation and aggregation were inhibited by lipoteichonic acid in a dose-dependent manner.

These results present potential of new concept of prevention/treatment in *S. mutans* - caused oral diseases.

Key words: caries, *Lactobacillus sp.*, probiotics, *Streptococcus mutans*.