

Antagonistic activity of probiotic strain of *Lactobacillus* against opportunistic bacteria during dysbiosis of intestine

Today the opportunistic microorganisms are one the most significant in clinical practice, because they cause a large number of different pathological lesions in human organism. Therapeutic measures against them, despite the considerable amount of development of clinical strategies, remains complicated due to the significant increase of resistance to antibiotics and the high colonization potential. In most cases, such enhanced pathogenicity is associated with the presence of microorganisms in the form of biofilm, which gives them additional benefits in survival in an aggressive environment of the intestine.

Opportunistic microorganisms can cause various pathological processes, including disorders of the microbiota, known as dysbiosis. Probiotics are predominantly used for the correction of the gastrointestinal tract microbiota. Such preparations usually containing bifidobacteria and lactobacilli.

Aim. The aim of the research was to study the antagonistic properties of probiotic strain of *Lactobacillus* against opportunistic microorganisms isolated from the gastrointestinal tract of patients with dysbiosis.

Methods. The culture of lactobacilli was isolated from the probiotic preparation by seeding on MRS media (HiMedia, India), and then it was identified as *Lactobacillus spp.* (laboratory mark — strain 1) by standard methods according to the typical features, described in the Bergey's Manual. Antagonistic activity was studied by method of the delayed antagonism.

An antagonistic activity of the isolated strain of *Lactobacillus spp.* 1 was studied against total 54 strains of opportunistic microorganisms isolated from 46 samples of biological material from children under the age of 15 with suspected dysbiosis of the gastrointestinal tract.

Results. Isolated strain *Lactobacillus spp.* 1 showed different effectiveness of antagonistic action against various opportunistic bacteria. The strain was significantly more effective against Gram-negative bacteria. The maximal antagonistic activity was observed against lactose-negative *Escherichia coli* and *Proteus mirabilis* (growth retardation zone > 12 mm and 16 mm respectively for more than 80% of studied strains). Strain was least effective against *Staphylococcus aureus* and *Enterococcus spp.* (growth retardation zones < 8 mm and 6 mm respectively for more than 77% of studied strains).

It should be noted that the strain, isolated from the probiotic preparation, represented by single species from the multicomponent complex.

Consequently, when preparation used in the organism there will be a complex action of all components, which allows to expect more meaningful results.

Conclusion. A similar test for antagonism *in vitro* should be considered as estimating for choice of preparation for microbiota correction.