

**Absorption of zinc and cadmium by lactic acid bacteria.** / N. Rcheulishvili, E. Kakabadze, N. Chanishvili, A. Rcheulishvili / Nano Studies. – 2015. – # 12. – pp. 147-154. – geo.

Absorption process of zinc by *Lactobacillus* spp. E11 K3 and *Streptococcus thermophilus* 2N K2 has been studied. The concentration of added zinc in media was 20 µg / ml. Bacteria grew during different periods of time (12, 20, 36, 44, and 68 h). Then there is analyzed the dry masses of bacteria on Zn<sup>+2</sup> content with the method of atomic absorption spectrometry. For comparing, it is analyzed the same bacteria on Zn<sup>+2</sup> content when no Zn<sup>+2</sup> was added in media (control). Using the same scheme of analyze cadmium absorption by *Lactobacillus* spp. E11 K3 and *Streptococcus thermophilus* 2N K2 has been studied. Influence of Zn ions on Cd<sup>+2</sup> absorption has been studied. Because of this we grew bacteria in media where Cd<sup>+2</sup> has been added. For comparing it been also made bacteria grow in media where Cd<sup>+2</sup> and Zn<sup>+2</sup> have simultaneously been added. The concentration of Cd<sup>+2</sup> and Zn<sup>+2</sup> was 20 µg / ml. It was analyzed effect of bacteria on content of Cd<sup>+2</sup>. As a result it was shown that *Lb. spp. E11 K3* had better capability of Cd<sup>+2</sup> absorption than Zn<sup>+2</sup> absorption (about 2-times). Absorption of metal ions is more intensive during the first hours of bacterial growth. From 10 to 35 h of bacterial growth metal ions are taken out of bacteria. After 35 h the metal content in bacteria does not change. At first the concentration of Cd<sup>+2</sup> in bacteria grown in media containing Cd<sup>+2</sup> + Zn<sup>+2</sup> (in media there was added zinc and cadmium together) (*Lb. spp. E11 K3*) is more than in bacteria which was grown in media containing only added Cd<sup>+2</sup>. The mentioned makes one think that presence of Zn<sup>+2</sup> in media helps the absorption of Cd<sup>+2</sup> during the first period of growth. Though, in general the difference is not significant. The toxic effect of Cd<sup>+2</sup> suppresses the growth of bacterial strain *S. thermophilus* 2N K2. The presence of Zn<sup>+2</sup> in media helps *Lb. spp. E11 K3* to absorb Cd<sup>+2</sup>. Fig. 3, Ref. 15.

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