

The reaction of antimicrobial agents on chitosan

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Infectious poisoning caused by intoxication is a very common problem among the population. Antibiotics are used to treat such diseases, but their frequent and uncontrolled use can harm the body's microflora. That is why, together with antibiotics, patients are prescribed probiotics to correct the microflora, and with them - for detoxifying the body-enterosorbents that can minimize the collateral damage of antibiotics to the body. Chitosan is a fairly promising sorbent, but its interaction with drugs has not been fully studied.

The aim of the study was to determine the reaction of ampicillin, kanamycin, clarithromycin and ofloxacin to low-molecular-weight chitosan and their activity against test cultures of *Escherichia coli* and *Staphylococcus citreus*.

The activity of antibiotics and low-molecular chitosan was determined using hole method on GRM- agar. Antibiotics were added to the holes in the amount of 100 mcL with a concentration of 10 mcg/ml, chitosan-in the amount of 50 mcL with a concentration of 10 mg/ml, both separately and together. The sowing material of test cultures was prepared according to the standard of turbidity 0,5 according to McFarland. Incubation was performed at 28oC for 48 hours.

It was found that studied antibiotics are more effective at suppressing the growth of *E. coli* than the growth of *S. citreus*.

As expected, *E. coli* showed the resistance to ampicillin. A high sensitivity of *E. coli* to the action of clarithromycin was revealed (the diameter of the growth suppression zone was 42 mm). The activity of clarithromycin in the presence of chitosan decreased by 14,3%. *E. coli* also showed sensitivity to the action of ofloxacin and kanamycin (the diameter of the growth suppression zone was 35 and 22 mm, respectively). In the presence of chitosan, the activity of ofloxacin decreased by 11.4%.

S. citreus showed the resistance to ampicillin, kanamycin and ofloxacin, but showed a high sensitivity to clarithromycin (the diameter of the growth suppression zone was 39 mm). Chitosan didn't have a statistically significant effect on the activity of clarithromycin.