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**INCREASING THE ANTIBACTERIAL ACTIVITY
OF BENZYL PENICILLIN SODIUM SALT WHEN TREATMENT
WITH A PULSED MAGNETIC FIELD**

N. A. Rodenko¹

Samara National Research University, Samara, Russian Federation

Scientific supervisor: T. I. Vasilieva, Ph.D. in biology, associate professor
Samara National Research University, Samara, Russian Federation

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Antibiotics are now important drugs in the treatment of infectious diseases. There is a problem of resistance of microorganisms to an antibacterial drug. Therefore, increasing the biological activity of an antibiotic is an important task in medicine. We can go in several ways: synthesize a new drug or act on a molecule of a substance with a magnetic field [1].

The aim of our scientific work is to study the effect of pulsed magnetic fields (PMF) on the antibacterial activity of benzylpenicillin sodium salt.

The antibiotic treatment was carried out on a magnetic-pulse device, which was created at Samara University. A vial with an antibiotic was inserted into the inductor and the drug was placed on the drug with an alternating PMF. In this case, the processing of the antibiotic is carried out from 2 to 5 milliseconds.

An experimental stand was created with a means of measuring the parameters of the magnetic effect on the antibiotic. All parameters were measured using a Hall sensor and an oscilloscope. Next, we calculated the tenseness and frequency of the magnetic field.

To assess the antibacterial effect, the agar diffusion method using paper discs was used. The antibacterial effect was assessed against *Escherichia coli* bacteria. We carried out the treatment of benzylpenicillin powder with a high-intensity alternating PMF in a penicillin vial. Next, the substance was dissolved in sterile water.

The technique for studying antibacterial activity consisted of several stages: the agar was poured into a Petri dish; next, microorganisms were inoculated into Petri dishes; we laid out 4 paper discs as shown in the figure and placed 10 microliters of antibiotic solution on each disc; after that, Petri dishes were placed in a thermostat at 30 °C for 24 hours.

We got the following results. After treatment with a PMF of the antibiotic, an increase in the activity of benzylpenicillin was observed. At

¹ Rodenko Natalia Alekseevna, graduate student, email: t.rodenco@mail.ru

the same time, activity increased by about 12-24%. The effect of exposure to a PMF persisted for 1 day.

In addition, we have proven that the treatment with a PMF is safe for a living organism. Such studies have been carried out in laboratory mice.

It has been suggested that the increase in biological activity occurs due to a change in the conformation of the drug molecule. Today, results have been obtained that the composition of the antibiotic does not change after treatment with PMF. However, the method of ultraviolet spectroscopy shows changes in the conformation of the molecule.

In conclusion, we see that the use of a high-intensity PMF can increase the activity of the antibiotic. This fact gives us the opportunity to apply such treatment of drug PMF in medical centers. The effect of PMF on anticancer drugs could be further studied [2]. Today it is important to study the mechanism of changes in the biological activity of the antibiotic, so that this process can be controlled.

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ОСОБЕННОСТИ РЕЧЕВОГО ПОРТРЕТА БРИТАНСКОГО ВИДЕОБЛОГЕРА (НА МАТЕРИАЛЕ БЛОГОВ ЗОИ САГГ И МАРКУСА БАТЛЕРА)

Д. Ю. Рязанцева¹

*Самарский национальный исследовательский университет
имени академика С.П. Королева, г. Самара, Российская Федерация*

*Научный руководитель Н. В. Панина, к.ф.н., доцент
Самарский национальный исследовательский университет
имени академика С.П. Королева, г. Самара, Российская Федерация*

Ключевые слова: речевой портрет, видеоблогер, разговорная речь

¹ Рязанцева Дарья Юрьевна, студент группы 5321-450301D,
e-mail: daryazanceva@mail.ru