

STUDY OF THE ADSORPTION OF *BACILLUS SUBTILIS* ON DIFFERENT FRACTIONS OF ACTIVATED CARBONS OBTAINED FROM APPLE WOOD

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The paper presents the results of scientific research related to the study of adsorption processes of *Bacillus subtilis* bacteria on activated carbon obtained from apple wood. The activated carbons used have a specific BET area of about 2018 m²/g and a total sorption volume of the pores equal to 1,573 cm³/g. The study of the kinetics of the adsorption processes of the *Bacillus subtilis* bacteria showed that the value of the maximum adsorption for the fraction 630-800 μm is established within 90 min. The maximum adsorption capacity is 0,54-0,55 McF*10³/g, higher than activated charcoal obtained from apricot stones that has the values of 0,375-0,385 at 27°C. The peak of the adsorption is noticed after 90 minutes of the contact and is presented in the figure bellow:

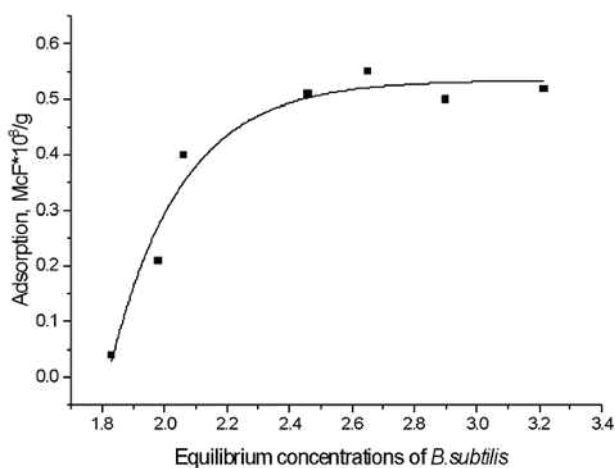


Figure 1. Adsorption isotherm of *B. subtilis* bacterium on AC-apple, fraction 630-800 μm at 27°C

The kinetics of the adsorption processes of activated carbon obtained from apple wood (fraction 800-2000 μm) for the same bacteria were evaluated at 27°C. The main sorptive properties were attested after 90 to 120 minutes of contact. The adsorption values are in the range of 0,21-0,25 McF*10³/g depending on the contact time, lower than in the case of the fraction 630-800 μm and are approximately at the level of activated carbons obtained from apricot stones tested at 37°C. The peak of the adsorption is noticed after 120 minutes of contact. We can conclude that the sorption capacity of the activated carbon of the fraction 630-800 μm obtained from apple wood is 2 times higher than in the case of the 800-2000 μm fraction of the same carbons for the *B. subtilis* bacterial species.

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