COMPARATIVE ANALYSIS OF METHODS FOR DETERMINATION OF ANTAGONIST ACTIVITY OF ACID LACTIC BACTERIA

Bogatko A.A., Kalyuzhnaya O.S., Strilets O.P., Strelnikov L.S.
The National University of Pharmacy, Kharkiv, Ukraine
bogatcko.andrej@yandex.ru

The in vintro methods allow you to check up quickly the big array of trains of the acid lactic bacteria and the test-cultures of undesirable microorganisms. You can include diffusion methods and methods of testing in liquid nutrient mediums to the given group. Diffusion methods (holes methods, blocks, perpendicular strokes, drops, etc.) are based on diffusion of antibiotic substances, formed by the test strains of lactobacilli, in thickness agar environment containing the test-culture, and suppression of growth by the last one. A method of perpendicular strokes is used the most. For an objective assessment of lactobacilli antagonistic action, detectable by this method, it is necessary to consider, that it gives advantage to strains which produce inhibitory connections of a small molecular mass, faster diffusing in thickness of agar layer and, consequently, giving more extensive zones of inhibition of the test-culture growth. This method has, however, essential deficiency: antibiotic substances producer and the test-organism are grown in the same environment, but not always the same environment is equally suitable for the producer and its formation of an antibiotic, and for growth of the test-organism. It is possible to define antagonistic activity of the pure and mixed dairy cultures of lactic bacteria by holes method, for example, to compare on this parameter various commercial dairy products. The disadvantage of the method is that there is a danger of leakage of liquids with lactic bacteria culture from hole in a crack between an agar and a bottom of a cup that causes the distortion of result. Unlike perpendicular strokes method, the blocks method gives an opportunity to compare a couple of (4-8) lactobacillus strains on one cup to the given test-culture. Besides, the method allows to use structurally various nutrient environment: one (block) is for the test lactobacilli, another is for the given strain test. Besides it is convenient for studying influence of a nutrient environment influence on inhibitory production connections studied by lactobacilli strains. Advantage of the agar layers method is the creation of a possibility to differentiate production of bacteriocins, and the disadvantage is the complexity of the process. As you can see, there are plenty of methods that help in defining of antimicrobial properties of studied microorganisms today, the choice of which depends on a predicted end result and research possibilities, but for reproducibility and unambiguity of results, in our opinion, it is necessary to conduct several methods.