

## COMPARISON OF ANTAGONISTIC ACTIVITY DETERMINATION METHODS

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Bacteria of the genus *Bacillus* are normal plant, soil and water inhabitants widely used not only in biotechnology but also in biocontrol because of the ability to produce versatile secondary metabolites that exhibit a wide range of biological activities and because of their high environmental resistance connected with spore-formation.

The aim of the research was to study the antagonistic activity of isolated *Bacillus* against phytopathogens *Erwinia carotovora*, *Agrobacterium tumefaciens* and *Ralstonia solanacearum*. The *Bacillus* strains were isolated from traditional Vietnamese fermented food by pasteurization. Pasteurized suspensions were plated on the LB agar medium and incubated at 28 °C for 24 h. 33 bacterial strains were identified as *Bacillus* for their morphological and biochemical properties, ability to spore-formation and composition of fatty acids

Using the "rods-replicating method" it was determined that *B. megaterium* ONU 484 and *B. megaterium* ONU 500 were the most active and killed from 88,2% to 100% of indication cultures. Antagonistic activity was measured by the diameter of the lysis zones. It was shown that the 72% of strains poses antagonistic activity by the synthesis of bacteriocinlike substances. According to the antagonistic activity strains were divided into several groups: low antagonistic activity - 30%; middle - 15%; high - 37% and very high antagonistic activity. It was revealed that the most active among antagonists were 18% of strains isolated from the leaves of mustard (*B. megaterium* ONU500, *B. megaterium* ONU 503 i *B. megaterium* ONU 498).

The effect of antagonistic activity of these strains was also tested using "holes methods" to identify the influence of culture fluid on the growth of phytopathogenic bacteria. It was found that the most active among antagonistic strains was *B. megaterium* ONU 481 strain which inhibited the growth of 83% phytopathogenic indicators. Minimal antagonistic activity (growth inhibition of only 8% of indicators) was determined to *B. megaterium* ONU 503.

It was revealed that only the combination of two methods is adequate for antagonistic activity determination. Results of the research create the basis of new biocontrol substance against phytopathogenic bacteria.