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Production of antifungal active substance using biofilm by Bacillus subtilis

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World population is now increasing, and the United Nations predicts that the world population will be 9.8 billion by 2050. As a result, higher food production is required. One of the solutions is the use of pesticides. In order to achieve higher food production, the burden on the environment has to be smaller and more sustainable. In view of this fact, microbial pesticides have attracted attention in recent years. Microbial pesticides are agents that use cells, and/or the substances produced by microorganisms and inhibit the growth of phytopathogenic fungi. Compared with chemical pesticides, microbial pesticides are less likely to remain in the environment, and it is difficult to develop drug-resistant bacteria. Therefore, we focused on Bacillus bacteria in this study. Bacillus bacteria are broadly distributed microbial microorganisms in the soil. It is reported that bacteria of the genus Bacillus form spores and biofilms and are resistant to growth inhibitory conditions. Using *Bacillus subtilis* strain RB14, which is known to produce iturin A, an antifungal substance. We examined the influence of medium concentration on biofilm formation and the production of antibiotic substance. The relationship between biofilm formation and antifungal substance production was clearly observed, and it was shown that antifungal substance was produced after biofilm formation. We have previously observed the biofilm formation in the medium with the agriculture residues. Using these properties, the experiment to increase the production amount of antifungal substance is under consideration.

Biography

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