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## Examination of the ability of PGPR bacteria phosphate solubilising agent

Csaba Daniel Kalman, Anna Szentgyörgyi and Erzsébet Kiss  
Cereal Research Nonprofit Ltd., Hungary

Bacteria that colonize plant roots and promote plant growth are referred to as plant growth-promoting rhizobacteria (PGPR). Our goal is to test the phosphate solubilizing capacity of PGPR and testing for the presence of genes which encode the enzyme of alkaline phosphatase produced by . During our research we worked with five strains of bacteria. For the certificate of phosphate solubilizing ability, the NBRIP agar medium has been created. Individual and combined isolates are injected by the medium. After 10 days of incubation a phosphate-solubilization effect was detected in the strains of study. The molybdenum blue method was applied for visual determination of phosphate carried into the solution. The effect of molybdovanadate was a yellow colour cast in the plates. After reducing the ascorbic acid, the blue molybdenum complex was formed, thus confirming the presence of phosphate ions in the solution. The alkaline phosphatase (ALPs) genes are an expression of exoenzymes which can be found in the peritoplasmic space of the bacterium or outside the cell membrane. During the tests, a PCR was started with the DNA of all the bacterial strains. The PCR products have been separated by agarose gel electrophoresis. The primers III, IV, VI, VII of the pairs that we have designed and used have given PCR products. The primers are not limited to *Bacillus megaterium*, but they also worked on samples of *Bacillus pumilis*, *Pseudomonas fluorescence* DNA and in the expected range have added a fragment. The results provide a basis for the preparation of new generation of soil vaccines, which can produce a significant amount of higher production, with less inputs.

### Biography

Csaba Daniel Kalman is a Agricultural Biotechnologist, completed MSc at Szent István University. He is the maize breeder of Cereal Research Nonprofit Ltd., one of the oldest breeder house in Hungary.

daniel.kalman@gabonakutato.hu

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