PP-362

Determination of Urease Enzyme Activities of Some Ureolytic Bacteria in Calcium Precipitation Medium

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Aim of the study: The aim of present study is to determine urease enzyme activities of some ureolytic bacteria (*Lysinibacillus fusiformis* U1, *Paenibacillus favisporus* U3, *Bacillus megaterium* U4, *Lysinibacillus fusiformis* U5, *Bacillus tequilensis* U8, *Bacillus licheniformis* U9, *Bacillus mycoides* U10, *Sporosarcina pasteurii* ATCC 6453) in calcium precipitation medium.

Material and Methods: For this purpose, ureolytic bacteria were incubated in calcium precipitation media (CPM) containing calcium chloride, sodium bicarbonate, urea and nutrient broth. At the end of the incubation, the cell cultures were sonicated by ultrasonicator and the enzyme mixture was obtained. The urease enzyme activities of bacteria were determined by phenol-hypochlorite method reading of colours at 630 nm in spectrophotometer.

Results: As a result of the study, urease enzyme activity of *L. fusiformis* U1 was found to be 2373.772 nmole/min/mg, *P. favisporus* U3 to 220.929 nmole/min/mg, *B. megaterium* U4 to 631.190 nmole/min/mg, *L. fusiformis* U5 to 244.444 nmole/min/mg, *B. tequilensis* U8 to 302.810 nmole/min/mg, *B. licheniformis* U9 to 290.707 nmole/min/mg, *B. mycoides* U10 to 188.417 nmole/min/mg and *S. pasteurii* ATCC 6453 to 2524.006 nmole/min/mg. Most of these bacteria may be used in soil improvement and restoration of limestone buildings. In order to test this hypothesis, several different experiments have been still continuing.

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