Panjaporn Anurat 2014: Screening of Potential Urease Producing Bacteria and Their Abilities in Calcium Carbonate Formation. Master of Science (Microbiology), Major Field: Microbiology, Department of Microbiology. Thesis Advisor: Assistant Professor Surang Suthirawut, Dr.Agr. 115 pages.

One hundred and fourteen bacterial strains were isolated from Thai commercial cement and coir dust samples by nutrient broth supplemented with 2% urea. Including of 146 strains of *B. megaterium* and *Bacillus* sp. from our culture collection, all of 260 strains were primary screened for urease activity by Christensen urea agar. One hundred and twenty-seven strains of urease positive strains were selected and secondary screened on urea broth for selection of high urease producing ones. Seven strains of high urease productivity based on urea broth were obtained and identified as *B. megaterium* A14, *B. thuringiensis* P1-18, unidentified C31 and C32 *Bacillus* sp. that related to *B. cereus* group, *Lysinibacillus* sp. 201 and *Lysinibacillus* sp. 501 that were closely related to both *L. sphaericus* and *L. fusiformis* and unidentified Gram positive coccus E34. The results from study of urease activity showed that *Lysinibacillus* sp. 501 and *Lysinibacillus* sp. 201 gave the highest yield of 14545.7 and 14363.8 Unit/ml, respectively. Calcium carbonate formation of each selected strain were compared by growing in NB supplemented with 2% urea and 0.025 M $CaCl_2$ and precipitated $CaCO_3$ were determined by EDTA titration method. *Lysinibacillus* sp. 201 and *Lysinibacillus* sp. 501 gave the highest yield at 3.7 and 3.6 g/l, respectively. Moreover, we found that *Lysinibacillus* sp. 201 could gave yield of precipitated $CaCO_3$ up to 17.7 g/l by supplemented of 0.2 M $CaCl_2$ in medium.

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