

Suphoj Noisakul 2013: Strain Improvement of *Corynebacterium glutamicum* DS50 by UV Mutagenesis for Enhancing L-Glutamate Production. Master of Science (Microbiology), Major Field: Microbiology, Department of Microbiology. Thesis Advisor: Assistant Professor Savitr Trakulnaleamsai, Ph.D. 122 pages.

For strain improvement, *Corynebacterium glutamicum* DS50 isolated from soil contaminated with duck feces was subjected to UV-irradiation (6-8 minutes exposure) for increasing L-glutamate production. Out of 180 isolates screened, the highest L-glutamate producing strain namely UV-BB9 was selected. The UV-BB9 exhibited L-glutamate yield of 1.63 g/ g dried cell which was 11-folds higher than that of the wild-type strain in basal salt medium with 2.5 µg/ L biotin. In addition, the mutant seemed to be more sensitive to lysozyme and temperature at 37 °C as compared to the wild-type. Furthermore, UV-BB9 exhibited high L-glutamate production although its growth was lower at 37 °C. The results indicated that UV-irradiation was effective mutagenic agent for *C. glutamicum* strain improvement.

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