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# ISOLATION AND SCREENING OF CELLULASE PRODUCING BACILLUS STRAINS FOR LEACHATE TREATMENT

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## SUMMARY

Leachate has high pollution and varies with the age of the landfill and the seasonality of the year. Leakage emissions directly into the environment without control will cause adverse effects on the environment as well as human health. Currently, Vietnam has applied a number of technologies for leachate treatment, but no technology has met the quality requirements of QCVN 25/2009-BTNMT. The microbiological method is used because there are many advantages such as; high treatment efficiency, no chemical use during treatment so no secondary pollution, low energy consumption for transportation green, etc. Some studies have shown that cellulose is one of the major components in leachate. One of the solutions for leachate treatment is the use of *Bacillus*, which is capable of degrading cellulose due to its rapid growth, good deposition, and enzymatic activity. From the 3 leachate samples, the V40 strain produced cellulase of 2,921 U/ml was selected. The V40 strain was identified by Kit 50 CHB and 16S rRNA for 100% homology with *Bacillus subtilis* JCM 1465 which suggested naming *Bacillus subtilis* V40. *Bacillus subtilis* V40 was used with concentration with 10<sup>6</sup> CFU/ml to treat leachate of COD at 9712 mg/L after 7 days, the efficient of 45.93% COD treatment and 2% for control samples.

**Keywords:** *Bacillus subtilis*, cellulose, enzyme cellulase, landfill leachate, leachate treatment.

Ngày nhận bài : 07/11/2018

Ngày phản biện : 19/11/2018

Ngày quyết định đăng : 26/11/2018