

Isolation and identification of styrene degrading bacteria from Irisan dumpsite, Baguio City**Deoxier Ribo C Agub**

University of the Philippines, Philippines

Styrene is a toxic substance released in the environment during the manufacture and application of its isomers. Bacteria can degrade styrene and convert recalcitrant polystyrene into an environmentally friendly plastic. This study was conducted to isolate and identify styrene degrading bacteria from Irisan dumpsite. Ten isolates were chosen for identification through sequencing based on the biochemical tests results. One of the ten isolates was from an uninoculated control not exposed to styrene, and was identified to be *Burkholderia rinojensis*, and three of the ten isolates were identified to be *Burkholderia cepacia*. Seven putative styrene degrading bacteria were identified through 16S rRNA sequencing and BLAST analyses namely, *Brevundimonas diminuta*, *Burkholderia cepacia*, *Stenotrophomonas maltophilia*, *Bacillus subtilis*, *Bacillus sonorensis*, *Bacillus licheniformis*, and *Burkholderia vietnamensis*. Phylogenetic analyses revealed that *B. cepacia* is a distant relative among the identified bacteria. Furthermore, *B. diminuta* is a distinct close relative of *B. subtilis*, *B. sonorensis*, and *B. licheniformis*. Previous studies have shown that *B. licheniformis* participate in styrene degradation by producing enzymes phenylacetaldehyde dehydrogenase and catechol 2,3-dioxygenase. Furthermore, organisms which can produce the enzyme catechol 2, 3-dioxygenase participate in styrene degradation. It is highly recommended that High Performance Liquid Chromatography (HPLC) be used to quantitatively measure the rate of styrene degradation.

Biography

I am a Biology graduate from University of the Philippines.

dcagub@up.edu.ph

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