ABSTRACT

THE IDENTIFICATION AND CHARACTERIZATION OF METHYL IODIDE DEGRADERS

The phasing out of methyl bromide (MeBr) from the agricultural industry due to its ozone depleting property has prompted a search for a replacement. Methyl iodide (MeI) is chemically similar to MeBr, which has makes MeI a promising alternative. Several studies have been conducted and shown that it is an equally effective pesticide. However, the introduction of any pesticide comes with environmental concerns. In particular, MeI can penetrate soil at great depth, which has raised a concern over possible water contamination. This study focused on soil microorganisms with the ability to grow in MeI as the only food source. These microorganisms were isolated from MeI treated soil. Their ability to enhance the degradation of MeI varied among themselves based on gas chromatography analyses. Preliminary analysis on the degradation pathway revealed that dehalogenation may be the first reaction rather than involving methyltransferase, a known pathway for MeBr degradation.

Paphavee Lertsethtakarn
August 2005