

Bioremediation of fuel-oil contaminated soil

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Introduction

Bioremediation has attracted attention recently. Bioremediation technique has been in use in treating fuel-oil contaminated soil for the last few years. Oxygen, fertilizer and fuel-oil reducing microbes are essential components in this technique.

The author have been conducting laboratory experiments to assess treatability of fuel-oil contaminated soil using bioremediation method, and find the most suitable condition for the treatment. It is very important to increase fuel-oil reducing microbes in the topsoil if numbers of these microbes in the contaminated soil are insufficient. Experiments were carried out to evaluate the effects of adding topsoil in order to promote fuel-oil degradation.

Method

300 milliliter capacity culture bottles filled with 100 grams of fuel-oil contaminated soil samples and pure oxygen were used for treatability assessment in laboratory. Aerobic bacteria reduced fuel-oil compounds in presence of oxygen in the sealed culture bottles. The amount of degradation was estimated from decrease in oxygen density in the bottles. Bioremediation technique for fuel-oil contaminated soils was demonstrated in real sites.

Results

The results of the laboratory tests showed that addition of fertilizer and topsoil was essential for effective bioremediation of fuel-oil contaminated soils. And, big number of necessary microbes inhabited the topsoil. Then, the number of bacteria decreased with decrease in fuel-oil density in soil.