

PENGARUH PENAMBAHAN LIMBAH ORGANIK PADA KONSORSIUM BAKTERI TERHADAP DEGRADASI HIDROKARBON TANAH TERCEMAR DARI DESA WONOCOLO, BOJONEGORO, JAWA TIMUR

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INTISARI

Pencemaran hidrokarbon merupakan ancaman bagi lingkungan tanah dan berpotensi meluas ke perairan sehingga dapat mengganggu kesehatan manusia. Penelitian ini berfokus pada penguraian hidrokarbon di lahan bekas tambang minyak dengan menggunakan ko-kultur bakteri indigen dan limbah organik dedak padi dan kotoran unggas. Tujuan penelitian ini adalah untuk mengetahui karakteristik dan potensi isolat bakteri indigen dalam menguraikan hidrokarbon serta membandingkan penambahan limbah organik terhadap efisiensi degradasi. Tahapan penelitian meliputi karakterisasi bakteri, uji sinergis antarisolat, screening ko-kultur pada media cair, optimasi ko-kultur, dan uji degradasi tanah. Berdasarkan hasil penelitian menunjukkan bahwa dari lima isolat bakteri, seluruh kombinasi memperlihatkan interaksi sinergis. Dua isolat terpilih yaitu DIA 6 & 10 teridentifikasi memiliki potensi tinggi dalam pengujian pada media cair ditunjukkan dengan hasil produksi biomassa tertinggi. Hasil uji degradasi tanah menunjukkan perlakuan tanpa limbah organik (P1) dan perlakuan dengan penambahan limbah organik (P2) menghasilkan penurunan Total Petroleum Hydrocarbon (TPH) masing-masing menjadi 93,54 dan 99,67 mg kg⁻¹.

Kata Kunci: ko-kultur, Hidrokarbon, TPH, Kotoran unggas, dedak padi

**THE EFFECT OF ADDITION OF ORGANIC WASTE IN BACTERIAL
CONSORTIUM ON HYDROCARBON DEGRADATION OF
CONTAMINATED SOIL FROM WONOCOLO VILLAGE,
BOJONEGORO, EAST JAVA**

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ABSTRACT

Hydrocarbon pollution poses a threat to the soil environment and has the potential to spread to water bodies, thus endangering human health. This research focuses on the decomposition of hydrocarbons in a former oil mining area using a co-culture of indigenous bacteria and organic waste such as rice bran and poultry manure. The purpose of this study was to determine the characteristics and potential of indigenous bacterial isolates in decomposing hydrocarbons and to compare the addition of organic waste to degradation efficiency. The research stages included bacterial characterization, synergy testing between isolates, co-culture screening in liquid media, co-culture optimization, and soil degradation testing. The results showed that of the five bacterial isolates, all combinations exhibited synergistic interactions. Two selected isolates, DIA 6 and 10, were identified as having high potential in the liquid media test, as evidenced by the highest biomass production. The results of the soil degradation test showed that the treatment without organic waste (P1) and the treatment with the addition of organic waste (P2) resulted in a reduction in Total Petroleum Hydrocarbons (TPH) to 93.54 and 99.67 mg kg⁻¹, respectively.

Keywords: co-culture, Hydrocarbon, TPH, Poultry manure, Rice br

