Characterization of a Novel Long-Chain *n*-Alkane-Degrading Strain, *Dietzia* sp. E1

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The newly isolated strain E1, identified as a *Dietzia* sp., proved to have an excellent ability to degrade *n*-C_{12} to *n*-C_{38} alkane components of crude oil. The preferred substrate was the very long-chain alkane *n*-eicosane at an optimal temperature of 37 °C and an optimal pH of 8 under aerobic conditions. The growth and substrate uptake kinetics were monitored during the *n*-alkane fermentation process, and *Dietzia* sp. E1 cells were found to possess three distinct levels of cell-surface hydrophobicity. Gas chromatographic/mass spectrometric analysis revealed that intracellular substrate mineralization occurred through the conversion of *n*-alkane to the corresponding *n*-alkanal. The monoterminal oxidation pathway was presumably initiated by AlkB and CYP153 terminal alkane hydroxylases, both of their partial coding sequences were successfully detected in the genome of strain E1, a novel member of the *Dietzia* genus.

Key words: n-Alkane, *Dietzia*, Cell-Surface Hydrophobicity