

Hydrolytic Enzymes and Surfactants of Bacterial Isolates from Lubricant-Contaminated Wastewater

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Fifteen bacterial monocultures were isolated from lubricant-contaminated wastewater of an electric power station in Sofia. Six isolates showed best growth in liquid media with 1.5% hexadecane, and on mineral salt agar plates supplemented with one of the following hydrocarbons: n-hexadecane, paraffin, kerosene and samples of wastewater. The ability of all isolates to produce extracellular hydrolytic enzymes and surface-active glycolipids was assessed on the basis of their growth on hydrocarbons. The study of this relatively closed micro-ecosystem revealed the existence of well-balanced microbial consortium where different members have their own role and support each other. On this basis, an alternative approach is proposed for bioaugmented clean up of wastewater contaminated with hydrocarbons and organic polymers using a mixed culture of indigenous bacteria that combines the best producers of glycolipids and hydrolytic enzymes.

Key words: Hydrolytic Enzymes, Glycolipids, Hexadecane