Enhanced Hydrocarbon Biodegradation by a Newly Isolated *Bacillus subtilis* Strain

Nelly Christova[a,*], Borjana Tuleva[a], and Boryana Nikolova-Damyanova[b]

[a] Institute of Microbiology, Bulgarian Academy of Sciences, Acad. G. Bonchev str, bl 26, 1113 Sofia, Bulgaria. E-mail: nhrist@yahoo.com

[b] Institute of Organic Chemistry, Bulgarian Academy of Sciences, Acad. G. Bonchev str, bl 9, 1113 Sofia, Bulgaria

* Author for correspondence and reprint requests

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The relation between hydrocarbon degradation and biosurfactant (rhamnolipid) production by a new *Bacillus subtilis 22BN* strain was investigated. The strain was isolated for its capacity to utilize *n*-hexadecane and naphthalene and at the same time to produce surface-active compound at high concentrations (1.5 – 2.0 g l^{-1}). Biosurfactant production was detected by surface tension lowering and emulsifying activity. The strain is a good degrader of both hydrocarbons used with degradability of 98.3 ± 1% and 75 ± 2% for *n*-hexadecane and naphthalene, respectively. Measurement of cell hydrophobicity showed that the combination of slightly soluble substrate and rhamnolipid developed higher hydrophobicity correlated with increased utilization of both hydrocarbon substrates. To our knowledge, this is the first report of *Bacillus subtilis* strain that degrades hydrophobic compounds and at the same time produces rhamnolipid biosurfactant.

Key words: Hydrocarbon Degradation, Biosurfactants, *Bacillus subtilis*