

Naphthalene Degradation and Biosurfactant Activity by *Bacillus cereus* 28BN

Borjana Tuleva^a, Nelly Christova^{a,*}, Bojidar Jordanov^b,
Boryana Nikolova-Damyanova^b, and Petar Petrov^c

^a Institute of Microbiology, Bulgarian Academy of Sciences, Acad. G. Bonchev str, bl 26, 1113 Sofia, Bulgaria. Fax: +397019. E-mail: nhrist@yahoo.com

^b Institute of Organic Chemistry, Acad. G. Bonchev str, bl 9, 1113 Sofia, Bulgaria

^c National Center of Infectious and Parasitic Diseases, 26 Yanko Sakazov Blvd., 1504 Sofia, Bulgaria

* Author for correspondence and reprint requests

Z. Naturforsch. **60c**, 577–582 (2005); received Dezember 8, 2004/February 3, 2005

Biosurfactant activity and naphthalene degradation by a new strain identified as *Bacillus cereus* 28BN were studied. The strain grew well and produced effective biosurfactants in the presence of *n*-alkanes, naphthalene, crude oil and vegetable oils. The biosurfactants were detected by the surface tension lowering of the medium, thin layer chromatography and infrared spectra analysis. With (2%) naphthalene as the sole carbon source, high levels of rhamnolipids at a concentration of 2.3 g l⁻¹ were determined in the stationary growth. After 20 d of incubation 72 ± 4% of the initial naphthalene was degraded. This is the first report for a *Bacillus cereus* rhamnolipid producing strain that utilized naphthalene under aerobic conditions. The strain looks promising for application in environmental technologies.

Key words: Naphthalene Degradation, Rhamnolipids, *Bacillus cereus*