

เอกสารอ้างอิง

- นางลักษณ์ สุวรรณพินิจ และปรีชา สุวรรณพินิจ. 2544. อาหารเลี้ยงเชื้อและการเพาะเลี้ยงจุลินทรีย์. ใน จุลชีววิทยาทั่วไป. หน้า 74-96. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.
- Ana, C.M., Oliyera, N., Commendatore, M., Esteves, J.L. and Sineriz, F. 2000. Enhancement of hydrocarbon waste biodegradation by addition of a biosurfactant from *Bacillus subtilis* 09. Biodegradation. 11: 65-71.
- Arima, K., Kakinuma. A. and Tamura, G. 1968. Surfactin, a crystalline peptide lipid surfactant produced by *Bacillus subtilis*: isolation, characterization and its inhibition of fibrin clot formation. Biochem. Biophys. Res. Commun. 31: 488-494.
- Banat, I.M. 1995. Biosurfactants production and possible uses in microbial enhanced oil recovery and oil pollution remediation: a review. Bioresource Technol. 51: 1-12.
- Belsky, I., Gutnick, D.L. and Rosenberg, E. 1979. Emulsifier of *Arthrobacter* RAG-1: determination of emulsifier bound fatty acids. FEBS Lett. 101: 175-178.
- Bodour, A.A., Drees, K.P. and Raina, M.M. 2003. Distribution of biosurfactant – producing bacteria in undisturbed and contaminated arid southwestern soils. Appl. Environ. Microbiol. 69: 3280-3287.
- Bradford, MM. 1976. A rapid and sensitive method for the quantification of microgram quantities of protein utilizing the principle of protein-dye binding. Anal. Biochem. 72: 248-254.
- Burd, G. and Ward, O.P. 1996. Physicochemical properties of PM-factor, a surface-active agent produced by *Pseudomonas marginalis*. Can. J. Microbiol. 42: 243-251.
- Castillo, E. and Lopez-Munguia, A. 2004. Synthesis of levan in water-miscible organic solvents. J. Biotechnol. 114: 209-217.
- Choi, J.W., Choi, H.G. and Lee, W.H. 1996. Effects of ethanol and phosphate on emulsan production by *Acinetobacter calcoaceticus* RAG-1. J. Biotechnol. 45: 217-225.
- Cirigliano, M.C. and Carman, G.M. 1985. Purification and characterization of liposan, and bioemulsifier from *Candida lipolytica*. Appl. Environ. Microbiol. 51: 846-850.
- Cooper, D.G. 1986. Biosurfactants. Microbiol. Sci. 3: 145-149.
- Cooper, D.G. and Goldberg, B.G. 1987. Surface active agents from *Bacillus* species. Appl. Environ. Microbiol. 53: 224-229.

- Cooper, D.G. and Paddock, D.G. 1983. *Torulopsis petrophilum* and surface activity. Appl. Environ. Microbiol. 46: 1426-1429.
- Cooper, D.G. and Paddock, D.G. 1984. Production of biosurfactant from *Torulopsis bombicola*. Appl. Environ. Microbiol. 47: 173-176.
- Denger, K. and Schink, B. 1995. New halo- and thermo- tolerant fermenting bacteria producing surface-active compounds. Appl. Microbiol. Biotechnol. 44: 161-166.
- Desai, J.D. and Banat, I.M. 1997. Microbial production of surfactants and their commercial potential. Microbiol. Mol. Biol. Rev. 61: 47-64.
- Deziel, E., Paquette, G., Villemur, R., Lepine, F. and Bisailon, J.G. 1996. Biosurfactant production by a soil *Pseudomonas* strain growing on polycyclic aromatic hydrocarbons. Appl. Environ. Microbiol. 62: 1908-1912.
- Dubois, M., Gills, K.A., Hamilton, J.K., Rebers, P.A. and Smith, F. 1956. Colorimetric method for determination sugars and related substances. Anal. Chem. 28: 350-356.
- Gauthier, M.J., Lafay, B., Cristen, R., Fernandez, L., Acquaviva, M., Bonin, P. and Bertrand, J.C. 1992. *Marinobacter hydrocarbonoclasticus* gen. nov., sp. Nov., a new, extremely halotolerant, hydrocarbon-degrading marine bacterium. In. J. Syst. Bacteriol. 42: 568-576.
- Georgiou, G., Lin, S.C. and Sharma, M.M. 1990. Surface activity compounds from microorganisms. Bio/Technol. 10: 60-65.
- Gurjar, M., Khire, J.M. and Khan, M.I. 1995. Bioemulsifier production by *Bacillus stearothermophilus* VR-8. Lett. Appl. Microbiol. 21: 83-86.
- He, H., Shen, B., Korshalla, J. and Carter, G.T. 2001. Circulocins, new antibacterial lipopeptides from *Bacillus curculans* J2154. Tetrahedron. 57: 1189-1195.
- Healy, M.G., Devine, C.M. and Murphy, R. 1996. Microbial production of biosurfactants. Res. Conserv. Rec. 18: 41-57.
- Herman, D.C., Artiola, J.F. and Miller, R.M. 1995. Removal of cadmium, lead and zinc from soil by a rhamnolipid biosurfactant. Environ. Sci. Technol. 29: 2280-2285.
- Iwabuchi, N., Sunairi, M., Urai, M., Itoh, C., Anzai, H., Nakajima, M. and Harayama, S. 2002. Extracellular polysaccharide of *Rhodococcus rhodochrous* S-2 stimulates the degradation

- of aromatic component in crude oil by indigenous marine bacteria. *Appl. Environ. Microbiol.* 68: 2337-2343.
- Jenny, K., Kappeli, O. and Fiechter, A. 1991. Biosurfactant from *Bacillus licheniformis*: structure analysis and characterization. *Appl. Microbiol. Biotechnol.* 36: 5-13.
- Kaplan, N. and Rosenberg, E. 1982. Exopolysaccharide distribution of and bioemulsifier production by *Acinetobacter calcoaceticus* BD4 and BD413. *Appl. Environ. Microbiol.* 44: 1335-1341.
- Kim, H.S., Yoon, B.D., Lee, C.H., Suh, H.H., Oh, H.M., Katsuraki, T. and Tani, Y. 1997. Production and properties of lipopeptide biosurfactant from *Bacillus subtilis* C9. *J. Ferment. Bioeng.* 84: 41-46.
- Kitamoto, D., Isoda, H. and Nakahara, T. 2002. Functions and potential applications of glycolipid biosurfactants from energy-saving materials to gene carriers (review). *J. Biosci. Bioeng.* 94: 187-201.
- Kretschmer, A., Bock, H. and Wagner, F. 1982. Chemical and physical characterization of interfacial-active lipids from *Rhodococcus erythropolis* grow on n-alkane. *Appl. Environ. Microbiol.* 44: 864-870.
- Lang, S. 2002. Biological amphiphiles (microbial biosurfactant). *Curr. Opin. Colloid Int. Sci.* 7: 12-20.
- Lang, S. and Wagner, F. 1987. Structure and Properties of Biosurfactants. *In Biosurfactants and Biotechnology.* (Kosaric, N., Cairns, W.L. and Gray, N.C. ed). Marcel Dekker, Inc. New York.
- Lowry, O.H., Rosebrough, J., Farr, A.L. and Randall, R.J. 1951. Protein measurement with the folin phenol reagent. *J. Biol. Chem.* 193: 265-275.
- Maeng, J.H., Sakai, Y., Tani, Y. and Kato, N. 1996. Isolation and characterization of a novel oxygenase that catalyzes the first step of *n*-alkane oxidation in *Acinetobacter* sp. strain M-1. *J. Bacteriol.* 178: 3695-3700.
- Makkar, R.S. and Cameotra, S.S. 1997. Biosurfactant production by thermophilic *Bacillus subtilis* strain. *J. Ind. Microbiol. Biotechnol.* 18: 37-42.
- Maneerat, S., Nitoda, T., Kanzaki, H. and Kawai, F. 2005. Bile acids are new products of a marine bacterium, *Myroides* sp. strain SM1. *Appl. Microbiol. Biotechnol.* 67: 679-683.

- Marahiel, M., Denders, M., Krause, M. and Kleinkauf, H. 1977. Biological role of gramicidin S in spore functions. Studies on gramicidin – S negative mutants of *Bacillus brevis* 9999. Eur. J. Biochem. 99: 49-52.
- Markovetz, A.J. 1971. Subterminal oxidation of aliphatic hydrocarbons by microorganisms. Crit. Rev. Microbiol. 1: 225-238.
- May, S.W. and Katoposis, A.G. 1990. Hydrocarbon monooxygenase system of *Pseudomonas oleovorans*. Methods Enzymol. 188: 3-9.
- McInerney, M.J., Javaheri, M. and Nagle Jr, D.P. 1990. Properties of the biosurfactant produced by *Bacillus licheniformis* strain JF-2. J. Ind. Microbiol. 5: 95-102.
- Mulligan, C.N. 2005. Environment applications for biosurfactants. Environ. Pollut. 89: 183-198.
- Navon-Venezia, S., Zosim, Z., Gottlieb, A., Legmann, R., Carmeli, S., Ron, E.Z. and Rosenberg, E. 1995. Alasan, a new bioemulsifier from *Acinetobacter radioresistens*. Appl. Environ. Microbiol. 61: 3240-3244.
- Nweke, C.O. and Okpokwasili, G.C. 2003. Drilling fluid base oil biodegradation potential of a soil *Staphylococcus* species. Afr. J. Biotechnol. 2: 293-295
- Oberbremer, A., Muller-Hurtig, R. and Wagner, F. 1990. Effect of the addition of microbial surfactants on hydrocarbon degradation in soil population in a stirred reactor. Appl. Microbiol. Biotechnol. 32: 485-489.
- Osterreicher-Ravid, D., Ron, E.Z. and Rosenberg, E. 2000. Horizontal transfer of an exopolymer complex from one bacterial species to another. Environ. Microbiol. 2: 366-372.
- Poremba, K., Gunkel, W., Lang, S. and Wagner, F. 1991. Marine biosurfactants, III. Toxicity testing with marine microorganisms and comparison with synthetic surfactants. Z. Naturforsch. 46c: 210-216.
- Rehm, H. and Reiff, I. 1981. Mechanism and occurrence of microbial oxidation of long chain alkanes. Adv. Biochem. Eng. 19: 175-215.
- Robert, M., Mercade, M.E., Bosch, M.P., Parra, T.L., Espuny, M.J., Manresa, M.A. and Guinea, J. 1989. Effect of the carbon source on biosurfactant production by *Pseudomonas aeruginosa* 44T. Biotechnol. Lett. 11: 871-874.
- Ron, E.Z. and Rosenberg, E. 2001. Natural roles of biosurfactants. Environ. Microbiol. 3: 229-236.

- Roongsawang, N., Thaniyavarn, J. and Thaniyavarn, S. 1999. Properties of biosurfactant produced by *Bacillus* sp. Strain KP-2. Thai J. Biotechnol. 1: 54-60.
- Rosenberg, E., Perry, A., Gibson, D.T. and Gutnick, D.L. 1979a. Emulsifier *Arthrobacter* RAG-1: Specificity of hydrocarbon substrate. Appl. Environ. Microbiol. 37: 409-413.
- Rosenberg, E., Rubinovitz, C., Gottlieb, A., Rosenhak, S. and Ron, E.Z. 1988. Production of biodispersant by *Acinetobacter calcoaceticus* A2. Appl. Environ. Microbiol. 54: 317-322.
- Rosenberg, E., Zuckerberg, A., Rubinovitz, C. and Gutnick, D.L. 1979b. Emulsifier *Arthrobacter* RAG-1: isolation and emulsifying properties. Appl. Environ. Microbiol. 37: 402-408.
- Sar, N. and Rosenberg, E. 1983. Emulsifier production by *Acinetobacter calcoaceticus* strains. Curr. Microbiol. 9: 309-314.
- Schulz, D., Passeri, A., Schmidt, M., Lang, S., Wagner, F., Wray, V. and Gunkel, W. 1991. Marine biosurfactants, I. Screening for biosurfactants among crude oil degrading marine microorganisms from the North Sea. Z. Naturforsch. 46c: 197-203.
- Shabtai, Y. 1990. Production of exopolysaccharides by *Acinetobacter* strains in a controlled fed-batch fermentation process using soap stock oil (SSO) as carbon source. Int. J. Biol. Macromol. 12: 145-152.
- Shabtai, Y. Gutnick, D.L. 1985. Tolerance of *Acinetobacter calcoaceticus* RAG-1 to the cationic surfactant cetyltrimethylammonium bromide: role of the bioemulsifier emulsan. Appl. Environ. Microbiol. 49: 192-197.
- Shreve, G.S., Inguva, S. and Gunnam, S. 1995. Rhamnolipid biosurfactant enhancement of hexadecane biodegradation by *Pseudomonas aeruginosa*. Mol. Mar. Biol. Biotechnol. 4: 331-337.
- Sutthivanichakul, B., Thaniyavarn, J. and Thaniyavarn, S. 1999. Biosurfactant production by *Bacillus licheniformis* F2.2. Thai J. Biotechnol. 1: 46-53.
- Suzuki, T., Hayashi, K., Fujikawa, K. and Tsukamoto, K. 1965. The chemical structure of polymyxin E. The identities of polymyxin E₁ with colistin A and polymyxin E₂ with colistin B. J. Biol. Chem. 57: 226-227.

- Toren, A., Navon-Venezia, S., Ron, E.Z. and Rosenberg, E. 2001. Emulsifying activities of purified alasin proteins from *Acinetobacter radioresistens* KA 53. *Appl. Environ. Microbiol.* 67: 1102-1106.
- Vollbrecht, E., Rau, U. and Lang, S. 1999. Microbial conversion of vegetable oils into surface-active di-, tri-, and tetrasaccharide lipids (biosurfactants) by the bacterial strain *Tsukamurella* spec. *Fett/Lipid* 101: 389-394.
- Wilkinson, S.G. 1972. Composition and structure of the ornithine-containing lipid from *Pseudomonas rubescens*. *Biochim. Biophys. Acta* . 270: 1-17.
- Yakimov, M.M., Golyshin, P.N., Lang, S., Moore, E.R.B., Abraham, W.R., Lunsdorf, H. and Timmis, K.N. 1998. *Alkanivorax borkumensis* gen. nov., sp. nov., a new, hydrocarbon-degrading and surfactant-producing marine bacterium. In. *J. Syst. Bacteriol.* 48: 339-348.
- Yakimov, M.M., Timmis, K.N., Wray, V. and Fredrickson, H.L. 1995. Characterization of a new lipopeptide surfactant produced by thermotolerant and halotolerant substrate *Bacillus licheniformis* BAS50. *Appl. Microbial. Biotechnol.* 61: 1706-1713.
- Yu, G.Y., Sinclair, J.B., Hartman, G.L. and Bertagnolli, B.L. 2002. Production of iturin A by *Bacillus amyloliquefaciens* suppressing *Rhizoctonia solani*. *Soil. Biol. Biochem.* 34: 955-963.
- Zajic, J.E., Gignard, H. and Gerson, D.F. 1977. Properties and biodegradation of bioemulsifier from *Corynebacterium hydrocaboclastus*. *Biotechnol. Bioeng.* 19: 1303-1320.
- Zosim, Z., Gutnick, D.L. and Rosenberg, E. 1983. Uranium binding by emulsan and emulsanosols. *Biotechnol. Bioeng.* 25: 1725-1735.
- Zukerberg, A., Diver, A., Peeri, Z., Gutnick, D.L. and Rosenberg, E. 1979. Emulsifier of *Arthrobacter* RAG-1: chemical and physical properties. *Appl. Environ. Microbiol.* 37: 414-420.