

REFERENCES

1. Amann, R.I., Ludwig, W. and Schleifer, K. (1995). Phylogenetic Identification and In Situ Detection of Individual Microbial Cells without Cultivation. *Microbiol. Rev.* **59**, 143-169.
2. Ball et al. (1997) The influence of gas transport and porosity on methane oxidation in soils. *J. Geophysical Research*, **102**: 301- 308.
3. Begonja, A. and Hrsak, D. (2001). Effect of Growth Conditions on the Expression of Soluble Methane Monooxygenase. *Food Technol. Biotechnol.* **39**, 29-35.
4. Bodelier, P.L.E., and Laanbroek, H.L. (2004). Nitrogen as a regulatory factor in soils and sediments. *FEMS Microbiol. Ecol.* **47**, 265-277.
5. Bowman, J.P., McCammon, S.A. and Skerratt, J.H. (1997). *Methylosphaera hansonii* gen. nov., sp. nov., a psychrophilic, group I methanotroph from Antarctic marine-salinity, meromictic lakes. *Microbiology*. **143**, 1451-1459.
6. Brusseau, G.A., Bulygina, E.S. and Hanson, R.S. (1994). Phylogenetic Analysis and Development of Probes for Differentiating Methylophilic Bacteria. *Appl. Env. Microbiol.* **60**, 626-636.

7. Burrell, P.C. et al (2004) Identification, Detection and Spatial Resolution of Clostridium Populations Responsible for Cellulose Degradation in a Methanogenic Landfill Leachate Bioreactor. *Appl. Environ. Microbiol.* **70**: 2414-2419.
8. Bussman, I. *et al.* (2004). Preferential cultivation of type II methanotrophic bacteria from littoral sediments (Lake Constance). *FEMS Microbiol. Ecol.* **47**, 170-189.
9. Cai, Z. and Mosier, A.R. (2002) Restoration of methane oxidation abilities of desiccated paddy soils after re-watering. *Biol. Fertil. Soils*, **36**: 183-189.
10. Carini S.A., Orcutt, B.N. and Joye, S.B. (2003) Interactions between Methane Oxidation and Nitrification in Coastal Sediments. *Geomicrobiology Journal*. **20**: 355 - 374.
11. Cattanio, J.H. et al.(2002) Unexpected results of a pilot throughfall exclusion experiment on soil emissions of CO₂, CH₄, N₂O, and NO in eastern Amazonia. *Biol. Fertil. Soils*, **36**: 102-108.
12. Chae, K. J. *et al.* (2000). The optimum substrate to biomass ratio to reduce net biomass yields and inert compounds in biological leachate treatment under pure-oxygen treatments. *Bioprocess Engineering*. **23**, 235-243.

13. Coskuner, G., Ballinger, S. J., Davenport, R. J., Pickering, R. L., Solera, R., Head, I. M., Curtis, T. P. (2005). Agreement between Theory and Measurement in Quantification of Ammonia-Oxidizing Bacteria. *Appl. Environ. Microbiol.* 71: 6325-633.
14. Crecchio, et al. (2001) Short-term effects of municipal solid waste compost amendments on soil carbon and nitrogen content, some enzyme activities and genetic diversity. *Biol. Fert. Soils*, **34**: 311- 318.
15. Cummings, S.P. and Stewart, C.S (1995) Methanogenic interactions in model landfill co-cultures with paper as the carbon source. *Letters in Appl. Microbiol.* 20: 286-289.
16. Czepiel, et al (1996) Quantifying the effects of oxidation on landfill methane emissions. *J. Geophysical Research*, **101**: 16721-16729.
17. Daneel, R.A. and Senior, E. (1998) Impacts of the dual co-disposal of anaerobically digested sewage sludge and phenol with refuse on refuse catabolism. *S.A. Journal of Science*, **94**: 368-374.
18. Davis, K.E.R. et al (2005) Effects of Growth Medium, Inoculum Size, and Incubation Time on Culturability and Isolation of Soil Bacteria. *Appl. Environ. Microbiol.* 71: 826-834.

19. De Visscher et al (1999) Methane Oxidation in Simulated Landfill Cover Soil Environments. *Environ. Sci. Technol.* **33**: 1854-1859.
20. Dunfield, P. F. and Knowles, R. (1995) Kinetics of Inhibition of Methane Oxidation by Nitrate, Nitrite and Ammonium in a Humisol. *Appl. Environ. Microbiol.* **61**: 3129-3135.
21. Dunfield, P. F. et al. (1999) High-Affinity Methane Oxidation by a Soil Enrichment Culture Containing a Type II Methanotroph. *Appl. Environ. Microbiol.* **65**: 1009-1014.
22. Du Preez, L.M. (2002) Daily cover – how much do you need? In *Proceedings, International Waste Management Biennial Congress and Exhibition. African Waste Renaissance: Vukela Imfucuza! Waking up to Waste!* pp. 367-373. Durban, South Africa.
23. Farquhar, G.J. and Rovers, S. (1973). “Gas production from landfill decomposition,” *Water, Soil & Air Pollution* Vol. 2, pp. 483-495.
24. Fierer, N., Schimel, J.P. and Holden, P.A. (2003) Influence of Drying – Rewetting Frequency on Soil Bacterial Community Structure. *Microb. Ecol.* **45**: 63-71.

25. Fourie, A.B. (2000) The concept of ‘store and release’ covers for landfills. In: Wastecon 2000, Biennial conference & exhibition, 5-7 September 2000 Proceedings, volume 2. Somerset West, South Africa. pp. 85-94.
26. Fourie, A.B. (2002). Alternative cappings for the final capping of waste disposal sites. In *Proceedings, International Waste Management Biennial Congress and Exhibition. African Waste Renaissance: Vukela Imfucuzo! Waking up to Waste!* pp. 303-310. Durban, South Africa.
27. Gurijala, K.R., Sa, P. and Robinson, J.A. (1997) Statistical Modelling of Methane Production from Landfill Samples. *Appl. Environ. Microbiol.* **63**: 3797-3803.
28. Hanson, R.S. and Hanson, T.E. (1996) Methanotrophic Bacteria. *Microbiological Reviews*, **60**: 439-471.
29. Hanson, R. (1999) Ecology of Methylophilic bacteria In *Techniques in Microbial Ecology* ed. Burlage, R.S. Cambridge University Press, Cambridge. pp. 137-162.
30. Henckel, T., Friedrich, M. and Conrad, R. (1999) Molecular Analyses of the Methane-Oxidising Microbial Community by Targeting the Genes of 16S rRNA, Particulate Methane Monooxygenase, and Methanol Dehydrogenase. *Appl. Environ. Microbiol.* **65**: 1980-1990.

31. Heyer, J., Galchenko, V.F. and Dunfield, P.F. (2002). Molecular phylogeny of type II methane-oxidizing bacteria isolated from various environments. *Microbiology*. **148**, 2831-2846.
32. Hilger, H.A. et al. (1999). Exopolysaccharide Control of Methane Oxidation in Landfill Cover Soil. *J. Environmental Engineering*. **125**, 113-123.
33. Hilger, H.A., Cranford, D.F. and Barlaz, M.A. (2000). Methane oxidation and microbial exopolymer production in landfill cover soil. *Soil Biol. Biochem.* **32**, 457-467.
34. Hilger, H. and Humer, M. (2003). Biotic landfill cover treatments for mitigating methane emissions. *Environmental Monitoring and Assessment*. **84**, 71-84.
35. Huang, L. et al. (2002). Diversity and structure of the archaeal community in the leachate of a full-scale recirculating landfill as examined by direct 16S rRNA gene sequence retrieval. *FEMS Microbiol. Ecol.* **214**, 235-240.
36. Ishii K, Mussmann M, McGregor B, Amann R (2004) An improved fluorescence in situ hybridization protocol for the identification of bacteria and archaea in marine sediments. *FEMS Microbiol Ecol* 50: 203-212.

37. Jensen, S., Prieme, A. and Bakken, L. (1998). Methanol Improves Methane Uptake in Starved Methanotrophic Microorganisms. *Appl. Environ. Microbiol.* **64**, 1143-1146.
38. Jimenez, de la Paz, M. *et al.* (2002). Soil quality: a new index based on microbiological and biochemical parameters. *Biol. Fert. Soils.* **35**, 302-306.
39. Karakashev, D., Batstone, D.J. and Angelikadi, I. (2005) Influence of Environmental Conditions on Methanogenic Compositions in Anaerobic Biogas Reactors. *Appl. Environ. Microbiol.* **71**: 331-338.
40. Kightley, D., Nedwell, D.B. and Cooper, M. (1995) Capacity for Methane Oxidation in Landfill Cover Soils Measured in Laboratory-Scale Soil Microcosms. *Appl. Environ. Microbiol.* **61**: 592-601.
41. King, G.M. and Schnell, S. (1994) Ammonium and Nitrite Inhibition of Methane Oxidation by *Methylobacter albus* BG8 and *Methylosinus*. *Appl. Environ. Microbiol.* **60**: 3508-3513.
42. Kobabe, S., Wagner, D. and Pfeiffer, E.M. (2004) Characterisation of microbial community composition of a Siberian tundra soil by fluorescence in situ hybridisation. *FEMS Microbiol. Ecol.* **50**: 13-23.

43. Kussmaul, M. et al. (1998) Methanotrophs and Methanogens in Masonry. Appl. Environ. Microbiol. **64**: 4530-4532.
44. Lay, J., Li, Y. and Noike, T. (1998) Developments of Bacterial Population and Methanogenic Activity in a Laboratory-Scale Landfill Bioreactor. Water Research, **32**: 3673 - 3679.
45. Lueders, T., Pommerenke, B. and Friedrich.(2004) Stable-Isotope Probing of Microorganisms Thriving at Thermodynamic Limits: Syntrophic Propionate Oxidation in Flooded Soil. Appl. Environ. Microbiol. **70**: 5778-5786.
46. Lindsay D. and von Holy A. (1997) Evaluation of dislodging methods for laboratory grown biofilms. *Food Microbiology* **14**, 383-390.
47. Lindsay, D. and Von Holy, A. (1999) Different responses of planktonic and attached *Bacillus subtilis* and *Pseudomonas fluorescens* to sanitizer treatment. J. Food Protection 62: 68-379.
48. Liwarska-Bizukojc, E., Bizukojc, M. and Ledakowicz, S. (2001). Kinetic model for the process of aerobic biodegradation of organic fraction of municipal solid waste. *Bioprocess Biosystems Eng.* **24**, 195-202.
49. Mancinelli, R.L. (1995) The Regulation of Methane Oxidation in Soil. Annu. Rev. Microbiol. **49**: 581-601.

50. McSwain, B.S. et al (2005) Composition and Distribution of Extracellular Polymeric Substances in Aerobic Flocs and Granular Sludge. *Appl. Environ. Microbiol.* 71: 1051-1057.
51. Minimum Requirements for Waste Disposal by Landfill (1998) South African Department of Water Affairs and Forestry, Pretoria, South Africa. 2nd edition.
52. Mosey, F.E. and Fernandes, X.A. (1989). Patterns of hydrogen in biogas from the anaerobic digestion of milk-sugars. *Water Sci Technol.* 21: 187-196.
53. Murrell, J.C., McDonald, I.R. and Bourne, D.G. (1998). Molecular methods for the study of methanotroph ecology. *FEMS Microbiol. Ecol.* **27**, 103-114.
54. Murrell, C., Gilbert, B. and McDonald, I.R. (2000) Molecular biology and regulation of methane monooxygenase. *Arch. Microbiol.* **173**: 325-332.
55. Murrell, J.C. and Radajewski, S. (2000) Cultivation – independent techniques for studying methanotroph ecology. *Research in Microbiology*, **151**: 807-814.
56. Nedwell, D.B. and Reynolds, P.J. (1996) Treatment of Landfill Leachate by Methanogenic and Sulphate – Reducing Digestion. *Water Research*, **30**: 21-28.

57. Nesheim, J.C. and Lipscomb, J.D. (1996) Large Kinetic Isotope Effects in Methane Oxidation Catalysed by Methane Monooxygenase: Evidence for C-H Bond Cleavage in a Reaction Cycle Intermediate. *Biochemistry*, **35**: 10240-10347.
58. Nielsen, *et al* (1996) Regulation of bacterial methane oxidation: transcription of the soluble methane monooxygenase operon of *Methylococcus capsulatus* (Bath) is repressed by copper ions. *Microbiology*, **142**: 1289-1296.
59. Novella, P.H., Ekama, G.A. and Blight, G.E. (1996). The effects of leachate recycling and recirculation on leachate quality and refuse stabilisation. In, *Proceedings, International Waste Management Biennial Congress and Exhibition. Waste management – in crisis*, 17-20th September 1996. pp. 258-269. Durban, South Africa.
60. Novella, P.H. et al. (2002). Coastal Park landfill: 15 years of research – where to from here? In *Proceedings, International Waste Management Biennial Congress and Exhibition. African Waste Renaissance: Vukela Imfucuzo! Waking up to Waste!* pp. 62-69. Durban, South Africa.
61. Orphan et al (2001) Comparative Analysis of Methane-Oxidising Archaea and Sulfate-Reducing Bacteria in Anoxic Marine Sediments. *Appl. Environ. Microbiol.* **67**: 1922- 1934.
62. Pohland, F.G. and Kim, J.C. (1999). In situ anaerobic treatment of leachate in landfill

bioreactors. *Water, Sci. Tech.* **40**, 203-210.

63. Ren, T., Amaral, J.A. and Knowles, R. (1997) The response of methane consumption by pure cultures of methanotrophic bacteria to oxygen. *Canadian Journal of Microbiology*, **43**: 925-928.
64. Reinhart, D.R. (1996). Full scale experiences with leachate recirculating landfills: case studies. *Waste Management and Research*. **14**, 347-365.
65. Rohrs, L.H., Fourie, A.B. and Blight, G. E. (1998). Effects of sewage sludge and refuse composition on the rate of degradation and leachate quality of co-disposed waste in a water-deficient environment. *Water SA*. 24: 137-146.
66. Rohrs, L.H., Morris, J.W.F. and Fourie, A.B. (2002). Predicting gas production potential and the state of decay of municipal solid waste samples. In *Proceedings, International Waste Management Biennial Congress and Exhibition. African Waste Renaissance: Vukela Imfucuzo! Waking up to Waste!* pp.150-157. Durban, South Africa.
67. Roling, W.F.M. *et al* (2000). Analysis of Microbial Communities in a Landfill Leachate Polluted Aquifer using a New Method for Anaerobic Physiological Profiling and 16s rDNA Based Fingerprinting. *Microbial Ecology*, **40**, 177-188.

68. Roslev, P. and King, G.M. (1994) Survival and Recovery of Methanotrophic Bacteria Starved under Oxidic and Anoxic conditions. *Appl. Environ. Microbiol.* **60**: 2602-2608.
69. Rosqvist, H. (2000). Solute transport and moisture content variability in solid waste landfills. In *Proceedings, International Waste Management Biennial Congress and Exhibition*. 5-7 September 2000 Proceedings. pp. 21-30. Somerset West, South Africa.
70. Roszak, D.B. and Colwell, R.R. (1987) Survival Strategies of Bacteria in the Natural Environment. *Microbiological Reviews*, **51**: 365-379.
71. Sanchez, E. *et al.* (2000). Effect of temperature and pH on the kinetics of methane production, organic nitrogen and phosphorus removal in the batch anaerobic digestion process of cattle manure. *Bioprocess Eng.* **22**, 247-252.
72. Schnell, S. and King, G.M. (1994). Mechanistic analysis of Ammonium Inhibition of Atmospheric Methane Consumption in Forest Soils. *Appl. Environ. Microbiol.* **60**, 3514-3521.
73. Schoenborn, L. *et al* (2004) Liquid Serial Dilution Is Inferior to Solid Media for Isolation of Cultures Representative of the Phylum-Level Diversity of Soil Bacteria. *Appl. Environ. Microbiol.* **70**: 4363-4366.

74. Seghers, D. et al. (2003). Long-term effects of mineral versus organic fertilizers on activity and structure of the methanotrophic community in agricultural soils. *Environ. Microbiol.* **5**, 867-877.
75. Semrau, J.D. et al. (1995). Particulate Methane Monooxygenase Genes in Methanotrophs. *J. Bacteriol.* **177**, 3071-3079.
76. Sessitsch, A. et al (2001) Microbial Population Structures in Soil Particle Size Fractions of a Long-Term Fertilizer Field Experiment. *Appl. Environ. Microbiol.* **67**: 4215-4224.
77. Steudler, P.A. et al, (1989) Influence of nitrogen fertilisation on methane uptake in temperate forest soils. *Nature*, **341**: 314-316.
78. Strachan, L.J. et al. (2000). Full scale, on-site, complete treatment solution for landfill leachate: a first for South Africa. In: *Proceedings, International Waste Management Biennial Congress and Exhibition*. 5-7 September 2000. pp. 39-48. Somerset West, South Africa.
79. Swarbrick, G.E. (2001) "Microbiology of Landfill," *Geoenvironment 2001*, Ed. D.W. Smith, S.G. Fityus and M.A. Allman, Newcastle, Australia, 28 – 30 November, Australian Geomechanics Society, pp.397 – 408, ISBN 095992504 X.

80. Taiwo, L.B. and Oso, B.A. (2004) Influence of Composting Techniques on microbial succession, temperature and pH in a composting municipal solid waste. *African Journal of Biotechnology*. 3: 239-243.
81. Ueberbach, K.-O. (2002). Heavy weight refuse compactors. In *Proceedings, International Waste Management Biennial Congress and Exhibition. African Waste Renaissance: Vukela Imfucuzo! Waking up to Waste!* pp. 381-390. Durban, South Africa.
82. van Heerden, C.W. (1996). Composting of municipal solid waste. Can we afford it? In, *Proceedings, International Waste Management Biennial Congress and Exhibition. Waste management – in crisis*. pp. 328-329. 17th – 20th September 1996. Durban, South Africa.
83. Vazoller, R. F. et al (2001) Biodegradability Potential of Two Experimental Landfills in Brazil. *Brazilian Journal of Microbiology*. 32: 87-92.
84. Vorholt, J.A. (2002). Co-factor dependent pathways of formaldehyde oxidation in methylotrophic bacteria. *Arch. Microbiol.* **178**, 239-249.
85. Wall, D.K. and Zeiss, C. (1995) Municipal Landfill Biodegradation and Settlement. *Journal of Environmental Engineering*, **121**:214-224.

86. Whalen, S.C., Reeburgh, W.S. and Sandbeck, K.A. (1990) Rapid Methane Oxidation in a Landfill Cover Soil. *Appl. Environ. Microbiol.* **56**: 3405-3411.
87. Wise, M.G., McArthur, J. Vaun and Shimkets, L.J. (1999) Methanotroph Diversity in Landfill Soil: Isolation of Novel Type I and Type II Methanotrophs Whose Presence Was Suggested by Culture-Independent 16S Ribosomal DNA Analysis. *Appl. Environ. Microbiol.* **65**: 4887 – 4897.
88. Wise, M.G., McArthur, J. Vaun and Shimkets, L.J. (2001) *Methylosarcina fibrata* and gen. nov. , sp. nov. and *Methylosarcina quisquiliarum* sp. nov., novel type I methanotrophs. *Int. J. Syst Evol. Microbiol.* 51: 611-621.
89. Yu, K.W. et al. (2001) Nitrous oxide and methane emissions from different soil suspensions: effect of soil redox status. *Biol. Fertil. Soils*, **34**: 25-30.
90. Yu, H.Q. and Fang, H.H.P. (2003) Acidogenesis of gelatin-rich wastewater in an upflow anaerobic reactor: influence of pH and temperature. *Water Research*, **37**: 55-66.
91. Yuen, S.T.S. *et al.* (1997). The role of water in landfills: A full-scale hydrological study. In *AWWA 17th Federal Convention – Water in the Balance*. Melbourne, Australia.

92. Yuen, S.T.S. (2001). Bioreactor landfills: Do they work? In *Geoenvironment 2001: 2nd ANZ Conference on Environmental Geotechnics*. Newcastle, Australia. 28-30 November 2001.
93. Yuen, S.T.S., *et al.* (2001). Water balance between a dry and a wet landfill – a full-scale experiment. *J. Hydrol.* **251**, 29-48.
94. Zain, S.M. et al (2002) Land application technique for the treatment and disposal of sewage sludge. *Water, Science and Technology*, **46**: 303-308.
95. Zinder, S.H. (1999) Methanogens In *Techniques in Microbial Ecology* ed. Burlage, R.S. Cambridge University Press, Cambridge. Pp. 113 –134.