

## REFERENCES

Abad, E., Llerena, J. J., Saulo, J., Caixach, J. And Rivera, J. (2000) Comprehensive study on dioxin contents in binder and anticaking agent feed additives. *Organohalogen Compounds* 46: 439–442.

Albertson, N. H. and Koomey, M. (1993) Molecular cloning and characterization of a proline iminopeptidase gene from *Neisseria gonorrhoeae*. *Mol. Microbiol.* 9: 1203-1211.

Albright, L. M., Huala, E. and Ausubel, F. M. (1989) Prokaryotic signal transduction mediated by sensor and regulator protein pairs. *Annu. Rev. Genet.* 23: 311-336.

Alexeyev, M. F. (1999) The pKNOCK series of broad-host range mobilizable suicide vectors for gene knockout and targeted DNA insertion into the chromosome of Gram-negative bacteria. *BioTechniques* 26: 824-828.

Alexeyev, M. F. and Shokolenko, I. N. (1995) RP4 *oriT* and RP4 *oriT-R6K oriV* DNA cassettes for construction of specialized vectors. *BioTechniques* 19: 22-26.

Alexeyev, M. F., Shokolenko, I. N. and Croughan, T. P. (1995) Improved antibiotic-resistance gene cassette and omega elements for *Escherichia coli* vector construction and *in vitro* deletion/insertion mutagenesis. *Gene* 160: 63-67.

Alibek, K. and Handelman, S. (1999) *Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World*. New York, NY: Random House.

Altschul, S. F., Gish, W., Miller, W., Meyers, E. W. and Lipman, D. J. (1990) Basic local alignment search tool. *J. Mol. Biol.* 215: 403-410.

Angerer, A., Enz, S., Ochs, M. and Braun, V. (1995) Transcriptional regulation of ferric citrate transport in *Escherichia coli* K-12. FeCl belongs to a new subfamily of  $\sigma^{70}$ -type factors that respond to extracytoplasmic stimuli. *Mol. Microbiol.* 18: 163-174.

Arfmann, H. -A., Timmis, K. N. and Wittich, R. -M. (1997) Mineralization of 4-chlorodibenzofuran by a consortium consisting of *Sphingomonas* sp. strain RW1 and *Burkholderia* sp. strain JWS. *Appl Environ Microbiol* 63: 3458-3462.

Arora, S. K., Ritchings, B. W., Almira, E. C., Lory, S. and Ramphal, R. (1997) A transcriptional activator, FleQ, regulates mucin adhesion and flagellar gene expression in *Pseudomonas aeruginosa* in a cascade manner. *J. Bacteriol.* 179: 5574-5581.

ATSDR (1998) *Toxicological profile for Chlorinated Dibenzo-p-Dioxins*. US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, Atlanta, GA.

ATSDR (1994) *Toxicological profile for chlordane*. Atlanta, GA: U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, Atlanta, GA.

Azegami, K., Nishiyama, K., Watanabe, Y., Kadotoa, I., Ohuchi, A. and Fukazawa, C. (1987) *Pseudomonas plantarii* sp. nov., the causal agent of rice seedling blight. *Int. Syst. Bacteriol.* 37: 144-152.

Bains, J. and Boulanger, M. J. (2008) Structural and biochemical characterization of a novel aldehyde dehydrogenase encoded by the benzoate oxidation pathway in *Burkholderia xenovorans* LB400. *J. Mol. Biol.* 379: 597-608.

Balashova, N. V., Kosheleva, I. A., Golovchenko, N. P. and Boronin, A. M. (1998) Phenanthrene metabolism by *Pseudomonas* and *Burkholderia* strains. *Process Biochemistry* 35: 291-296.

Ballard, R. W., Palleroni, N. J., Doudoroff, M. and Satnier, R. Y. (1970) Taxonomy of the aerobic pseudomonads: *Pseudomonas cepacia*, *P. marginata*, *P. alliicola* and *P. caryophylli*. *J. Gen. Microbiol.* 60: 199-214.

Basu, A., Apte, A. K. and Phale, P. S. (2006) Preferential utilisation of aromatic compounds over glucose by *Pseudomonas putida* CSV86. *Appl. Environ. Microbiol.* 72: 2226-2230.

Becher, D., Specht, M., Hammer, E., Francke, W. and Schauer, F. (2000) Cometabolic degradation of dibenzofuran by byphenyl-cultivated *Ralstonia* sp. Strain SBUG 290. *Appl. Environ. Microbiol.* 66: 4528-4531.

Bedard, D. L., Unterman, R., Bopp, L. H., Brennan, M. J., Haberi, M. L. and Johnson, C. (1986) Rapid assay for screening and characterizing microorganisms for the ability to degrade polychlorinated biphenyls. *Appl. Environ. Microbiol.* 51: 761-768.

Beltrametti, F., Reniero, D., Backhaus, S. and Hofer, B. (2001) Analysis of transcription of the *bph* locus of *Burkholderia* sp. Strain LB400 and evidence that the ORF0 gene product acts as a regulator of the *bphA1* promoter. *Microbiology* 147: 2169–2182.

Bhat, M., Tsuda, M., Horiike, K., Nozaki, M., Vaidyanathan, C. and Nakazawa, T. (1994) Identification and characterization of a new plasmid carrying genes for degradation of 2,4-dichlorophenoxyacetate from *Pseudomonas cepacia* CSV90. *Appl. Environ. Microbiol.* 60: 307-312.

Bopp, L. H. (1986) Degradation of highly chlorinated PCBs by *Pseudomonas* strain LB400. *J Ind. Microbiol.* 1: 23-29.

Bopp, L. H. (1989) US patent # 4,843,009. *Pseudomonas putida* capable of degrading PCBs. June 27, 1989. Inventor: Lawrence H. Bopp, Scotia, NY Assignee: General Electric Company, Schenectady, NY.

Brisse, S., Cordevant, C., Vandamme, P., Bidet, P., Loukil, C., Chabanon, G., Lange, M., Bingen, E. (2004). Species distribution and ribotype diversity of *Burkholderia cepacia* complex isolates from French patients with cystic fibrosis. *J. Clin. Microbiol.* 42: 4824-4827.

Buck, M., Gallegos, M. T., Studholme, D. J., Guo, Y. and Gralla, J. D. (2000) The bacterial enhancer-dependent 54 (N) transcription factor. *J. Bacteriol.* 182: 4129-4136.

Buck, M., Miller, S., Drummond, M. and Dixon, R. (1986) Upstream activator sequences are present in the promoters of nitrogen fixation genes. *Nature* 320:374–378.

Burkholder, W. H. (1950) Sour skin, a bacterial rot of onion bulbs. *Phytopathology* 40: 115-117.

Burlage, R. S., Palumbo, A. V., Heitzer, A. and Sayler, G. S. (1994) Bioluminescent reporter bacteria detect contaminants in soil samples. *Appl. Biochem. Biotechnol.* 45-46: 731-740.

Burrows, P. C., Severinov, K., Ishihama, A., Buck, M. and Wigneshweraraj, S. R. (2003) Mapping sigma 54-RNA polymerase interactions at the -24 consensus promoter element. *J. Biol Chem.* 278: 29728–29743.

Byrne, A. M. and Olsen, R. H. 1996. Cascade regulation of the toluene-3-monooxygenase operon (*tbuA1UBVA2C*) of *Burkholderia pickettii* PKO1: role of the *tbuA1* promoter (PtbuA1) in the expression of its cognate activator TbuT. *J. Bacteriol.* 178:6327–6337.

Calvo, J. M., and Matthews, R. G. (1994) The leucine-responsive regulatory protein, a global regulator of metabolism in *Escherichia coli*. *Microbiol. Rev.* 58:466–490.

Campana, S., Taccetti, G., Ravenni, N., Favari, F., Cariani, L., Sciacca, A., Savoia, D., Collura, A., Fiscarelli, E., De Intinis, G., Busetti, M., Cipolloni, A., d'Aprile, A., Provenzano, E., Collebrusco, I., Frontini, P., Stassi, G., Trancassini, M., Tovagliari, D., Lavitola, A., Doherty, C. J., Coenye, T., Govan, J. R. W., Vandamme, P. (2005). Transmission of *Burkholderia cepacia* complex: evidence for new epidemic clones infecting cystic fibrosis patients in Italy. *J. Clin. Microbiol.* 43: 5136-5142.

Cases, I. and de Lorenzo, V. (2005) The limits to genomic prediction: role of sigma-N in environmental stress survival of *Pseudomonas putida*. *FEMS. Microbiol. Ecol.* 35: 217-221.

Chain, P. S. G., Denef, V. J., Konstantinidis, K. T., Vergez, L. M., Agullo, L., Reyes, V. L., Hauser, L., Cordova, M., Gomez, L., Gonzales, M., Land, M., Lao, V., Larimer, F., LiPuma, J. J., Mahenthiralingam, E., Malfatti, S. A., Marz, C. J., Parnell, J. J., Ramette, A., Richardson, P., Seeger, M., Smith, D., Spliker, T., Sul, W. J., Tsoi, T. V., Ulrich, L. E., Zhulin, I. B. and Tiedje, J. M. (2006) *Burkholderia xenovorans* LB400 harbors a multi-replicon, 9.73-Mbp genome shaped for versatility. *Proc. Natl. Acad. Sci. USA* 103: 15280-15287.

Chan, C-H. (2005) Characterisation of woodland rhizospheric isolates of *Burkholderia*. PhD Thesis, Imperial College London.

Chauhan, A., Samanta, S. K. and Jain, R. K. (2000) Degradation of 4-nitrocatechol by *Burkholderia cepacia*: a plasmid-encoded novel pathway. *J. Appl. Microbiol.* 88: 764-772.

Christenson, J. C., Welch, D. F., Mukwaya, G., Muszynski, M. J., Weaver, R. E. and Brenner, D. J. (1989) Recovery of *Pseudomonas gladioli* from respiratory tract specimens of patients with cystic fibrosis. *J. Clin. Microbiol.* 27: 270- 273.

Coenye, T. and Vandamme, P. (2003) Diversity and significance of *Burkholderia* sp ecies occupying diverse ecological niches. *Environ. Microbiol.* 5: 719-729.

Coenye, T., Henry, D., Speert, D. P., and Vandamme, P. (2004) *Burkholderia phenoliruptrix* sp. nov., to accommodate the 2,4,5-trichlorophenoxyacetic acid and halophenol-degrading strain AC1100. *Syst. Appl. Microbiol.* 27: 623-627.

Coenye, T., Laevens, S., Willems, A., Ohlen, M., Hannat, W., Govan, J. R. W., Gillis, M., Falsen, E. and Vandamme, P. (2001a) *Burkholderia fungorum* sp. nov. and *Burkholderia caledonia* sp. nov., two new species isolated from the environment, animals and human clinical samples. *Int. J. Syst. Evol. Microbiol.* 51: 1099-1107.

Coenye, T., Mahenthiralingam, E., Henry, D., LiPuma, J. J., Laevens, S., Gillis, M., Speert, D. P. and Vandamme, P. (2001b) *Burkholderia ambifaria* sp. nov., a novel member of the *Burkholderia cepacia* complex including biocontrol and cystic fibrosis-related isolates. *Int. J. Syst. Evol. Microbiol.* 51: 1481-1490.

Coppard, J. R. and Merrick, M. J. (1991) Cassette mutagenesis implicates a helix-turn-helix motif in promoter recognition by the novel RNA polymerase sigma factor  $\sigma^{54}$ . *Mol Microbiol*. 5:1309–1317.

Corpett, F. (1988) Multiple sequence alignment with hierarchical clustering. *Nucl. Acids Res.*, 16: 10881-10890.

Dance, D. A. (1991) Melioidosis: the tip of the iceberg? *Clin. Microbiol. Rev.* 4: 52-60.

Daubars, D. and Chakrabarty, A. M. (1992) The environment, microbe and bioremediation: Microbial activities modulated by the environment. *Biodegradation* 3: 125-135.

Di-Gregorio, S., Zocca, C., Sidler, S., Toffanin, A., Lizzari, D. and Vallini, G. (2004) Identification of two new sets of genes for dibenzothiophene transformation in *Burkholderia* sp. DBT1. *Biodegradation* 15: 111-123.

Doucleff, M., Malak, L. T., Pelton, J. G. and Wemmer, D. E. (2005) The C-terminal RpoN domain of s54 forms an unpredicted helix–turn–helix motif similar to domains of s70. *J. Biol. Chem.* 280: 41530–41536.

El-Sayed, W. S., Ibrahim, M. K., Abu-Shady, M., El-Beih, F., Ohmura, N., Saiki, H. and Ando, A. (2003) Isolation and characterization of phenol-catabolizing bacteria from a coking plant. *Biosci. Biotechnol. Biochem.* 67: 2026-2029.

Engesser, K.-H., Strubel, V., Christoglou, K., Fischer, P. and Rast, H. G. (1989). Dioxygenolytic cleavage of aryl ether bonds: 1,10-dihydro-1,10-dihydroxyfluoren-9-one, a novel arene dihydrodiol as evidence for angular dioxygenation of dibenzofuran. *FEMS Microbiol Lett* 65: 205–220.

Environment Australia (2003) BTEX personal exposure study in four Australian cities, *Technical Report No.6, Living Cities Air Toxics Program*, Canberra.

Fernández, S., Shingler, V. and de Lorenzo, V. (1994) Cross-regulation by XylR and DmpR activators of *Pseudomonas putida* suggests that transcriptional control of biodegradative operons evolves independently of catabolic genes. *J. Bacteriol.* 176: 5052–5058.

Fischer, H. M. (1994) Genetic regulation of nitrogen fixation in *rhizobia*. *Microbiol. Rev.* 58, 352–386.

Fleming, J. T., Sanseverino, J. and Sayler, G. S. (1993) Quantitative relationship between naphthalene catabolic gene frequency and expression in predicting PAH degradation in soils at town gas manufacturing sites. *Environ. Sci. Technol.* 27: 1068-1074.

Furukawa, K. (2006) Oxygenases and dehalogenases: Molecular approaches to efficient degradation of chlorinated environmental pollutants. *Biosci. Biotechnol. Biochem.* 70: 2335-2348.

Furukawa, K. and Fujihara, H. (2008) Microbial degradation of polychlorinated biphenyls: biochemical and molecular features. *J Biosci. Bioeng.* 105: 433-449.

Gan, Y-H. (2005) Interaction between *Burkholderia pseudomallei* and the host immune response: sleeping with the enemy. *J. Infect. Dis.* 192: 1845-1850.

Gardan, R. Rapoport, G. and Debarbouille, M. (1995) Expression of the *rocDEF* operon involved in arginine catabolism in *Bacillus subtilis*. *J. Mol. Biol.* 249: 843-856.

Gentry, T. J., Wang, G., Rensing, C. and Pepper, I. L. (2004) Chlorobenzoate-degrading bacteria in similar pristine soils exhibit different community structures and population dynamics in response to anthropogenic 2-, 3-, and 4-chlorobenzoate levels. *Microb. Ecol.* 48: 90-102.

Gillis, M., Tran Van, V., Bardin, R., Goor, M., Hebbar, P., Willems, A., Sergers, P., Kersters, K., Heulin, T. and Fernandez, M. (1995) Polyphasic taxonomy in the genus *Burkholderia* leading to an embedded description of the genus and proposition of *Burkholderia vietnamiensis* sp. nov. for N<sub>2</sub>-fixing isolates from rice in Vietnam. *Int. J. Syst. Bacteriol.* 45: 274–289.

Goris, J., De Vos, P., Caballero-Mellado, J., Park, J., Falsen, E., Quensen, J. F., Tiedje, J. M. and Vandamme, P. (2004) Classification of the biphenyl- and polychlorinated biphenyl-degrading strain LB400T and relatives as *Burkholderia xenovorans* sp. nov. *Int. J. Syst. Evol. Microbiol.* 54: 1677-1681.

Govan , J. R., Hughes, J. E. and Vandamme, P. (2003) *Burkholderia cepacia*: medical, taxonomic and ecological issues. *J. Med. Microbiol.* 45: 395-407.

Govan, J. R., Doherty, C. J., Nelson, J. W., Brown, P. H., Greening, A. P., Maddison, J., Dodd, M. And Webb, A. K. (1993) Evidence for transmission of *Pseudomonas cepacia* by social contact in cystic fibrosis. *The Lancet* 342: 15-19.

Govan, J. R., Hughes, J. E. and Vandamme, P. (1996) *Burkholderia cepacia*; medical, taxonomic and ecological issues. *J.Med. Microbiol.* 45: 395-407.

Greer, C., Hawari, J. and Samson, R. (1990) Influence of environmental factors on 2,4-dichlorophenoxyacetic acid degradation by *Pseudomonas cepacia* isolated from peat. *Arch. Microbiol.* 154: 317-322.

Habe, H., Chung, J. S., Lee, J. H., Kasuga, K., Yoshida, T., Nojiri, H. and Omori, T. (2001) Degradation of chlorinated dibenzofurans and dibenzo-p-dioxins by two types of bacteria having angular dioxygenases with different features. *Appl. Environ. Microbiol.* 67: 3610-3617.

Harms, H., Wilkes, H., Wittich, R. M. and Fortnagel, P. (1995) Metabolism of hydroxydibenzofurans, methoxy-dibenzofurans, acetoxydibenzofurans, and nitrodibenzo-furans by *Sphingomonas* sp. strain HH69. *Appl. Environ. Microbiol.* 61: 2499-2505.

Hayatsu, M., Hirano, M. and Tokuda, S. (2000) Involvement of two plasmids in fenitrothion degradation by *Burkholderia* sp. Strain NF100. *Appl. Environ. Microbiol.* 66: 1737-1740.

Helmann, J. D. and Chamberlin, M. J. (1988) Structure and function of bacterial sigma factors. *Annu Rev. Biochem.* 57: 839-872.

Hendrikson, E. L., Plotnikova, J., Mahajan-Miklos, S., Rahme, L. G. and Ausubel, F. M. (2001) Differential roles of the *Pseudomonas aeruginosa* PA14 *rpoN* gene in pathogenicity in plants, nematodes, insects and mice. *J. Bacteriol.* 183: 7126-7134.

Hendrikson, E. L., Plotnikova, J., Mahajan-Miklos, S., Rahme, L. G. and Ausubel, F. M. (2001) Differential roles of the *Pseudomonas aeruginosa* PA14 *rpoN* gene in pathogenicity in plants, nematodes, insects and mice. *J. Bacteriol.* 183: 7126-7134.

Hengge-Aronis, R. (2000) A role for the sigma S subunit of RNA polymerase in the regulation of bacterial virulence. *Adv. Exp. Med. Biol.* 485:85-93.

Higson, F. and Focht, D. (1992) Degradation of 2-methylbenzoic acid by *Pseudomonas cepacia* MB2. *Appl. Environ. Microbiol.* 58: 194-200.

Hiraishi, A. (2003) Biodiversity of dioxin-degrading microorganisms and potential utilization in bioremediation. *Microbes Environ.* 18: 105-125.

Holden, M. T. G. Seth-Smith H. M. B., Crossman L. C., Sebaihia, M. Bentley, S. D. Cerdeno-Tarraga, A. M. Thomson, N. R. Bason, N. Quail, M. A. Sharp, S. Cherevach, I. Churcher, C. Goodhead, I. Hauser, H. Holroyd, N. Mungall, K. Scott, P. Walker, D. White, B. Rose, H. Iversen, P. Mil-Homens, D. Rocha, E. P. C. Fialho, A. M. Baldwin, A. Dowson, C. Barrell, B. G. Govan, J. R. Vandamme, P. Hart, C. A. Mahenthiralingam, E. and Parkhill, J. (2009) The genome of *Burkholderia cenocepacia* J2315, an epidemic pathogen of cystic fibrosis patients. *J. Bacteriol.* 191:261-277.

Holt, J., Krieg, N. R., Sneath, P. H. A., Staley, J. T. and Williams, S. T. (1994) *Bergey's determinative bacteriology*, 9<sup>th</sup> Ed. The Williams and Wilkens Co., Philadelphia.

Hong, B. H., Chang, Y. S. Choi, S. D. and Park, Y. H. (2000) Degradation of dibenzofuran by *Pseudomonas putida* PH-01. *Wat. Res.* 8: 2404-2407.

Isles, A., Maclusky, I., Corey, M., Gold, R., Prober, C., Fleming, P. and Levison, H. (1984) *Pseudomonas cepacia* infection in cystic fibrosis: an emerging problem. *J. Pediatr.* 104:206-2

Jeffery, W. H. and Barkay, N. T. (1996) Detection of the *merA* gene and its expression in the environment. *Microb. Ecol.* 32: 293-303.

Johnson, G. R., Jain, R. K. and Spain. J. C. (2000) Properties of the trihydroxytoluene oxygenase from *Burkholderia cepacia* R34; an extradiol dioxygenase from the 2,4-dinitrotoluene pathway. *Arch. Microbiol.* 173:86-90.

Jones, J., Studholme, D. J., Knight, C. G. and Preston, G. M. (2007) Integrated bioinformatics and phenotypic analysis of RpoN-dependent traits in the plant growth-promoting bacterium *Pseudomonas fluorescens* SBW25. *Environ. Microbiol.* 9: 3046-3064.

Juhasz, A. L., Britz, M. L. and Stanley, G. A. (1997) Degradation of fluoranthene, pyrene, benz[a]anthracene and diben[a,b]anthracene by *Burkholderia cepacia*. *J. Appl. Microbiol.* 83: 189-198.

Ka, J., Holben, W. and Tiedje, J. M. (1994) Genetic and phenotypic diversity of 2,4-dichlorophenoxyacetic acid (2,4-D)-degrading bacteria isolated from 2,4-D treated field soils. *Appl. Environ. Microbiol.* 60: 1106-1115.

Kang, H., Hwang, S., Kim, Y., Kim, E., Kim, Y., Kim, S., SW, K., Cerniglia, C., Shuttleworth, K. and Zylstra, G. (2003) Degradation of phenanthrene and naphthalene by a *Burkholderia* species strain. *Can. J. Microbiol.* 49: 139-144.

Kazmierczak, M. J., Wiedmann, M. and Boor, K. J. (2005) Alternative sigma factors and their roles in bacterial virulence. *Microbiol. Mol. Biol. Rev.* 69: 527-543.

Kikuchi, Y., Yasukochi, Y., Nagata, Y., Fukuda, M. and Takagi, M. (1994) Nucleotide sequence and functional analysis of the metacleavage pathway involved in biphenyl and polychlorinated biphenyl degradation in *Pseudomonas* sp. strain KKS1O2. *J Bacteriol* 176: 4269-4276.

Kilbane, J., Chatterjee, D., Karns, J., Kellogg, S. and Chakrabarty, A. (1982) Biodegradation of 2,4,5-trichlorophenoxyacetic acid by a pure culture of *Pseudomonas cepacia*. *Appl. Environ. Microbiol.* 44: 77-78.

Kim, T. J., Lee, E. Y., Kim, Y. J., Cho, K. S. and Ryu, H. W. (2003) Degradation of polycyclic aromatic hydrocarbon by Burkholderia cepacia 2A-12. *World J. Microbiol. Biotechnol.* 19: 411-417.

Kimura, N., Nishi, A., Goto, M. and Furukawa, K. (1998) Functional analyses of a variety of chimeric dioxygenases constructed from two biphenyl dioxygenases that are similar structurally but different functionally. *J. Bacteriol.* 179: 3936-3943.

King, J. M. H., DiGrazia, P. M., Applegate, B., Burlage, R., Sanseverino, J., Dunbar, P., Larimer, F. and Sayler, G. A. (1990) Rapid and sensitive bioluminescent reporter technology for naphthalene exposure and biodegradation. *Science* 249: 778-750.

Kjeller, L. O. and Rappe, C. (1995) Time trends in levels, patterns, and profiles for Polychlorinated Dibenz-p-dioxins, Dibenzofurans and Biphenyls in a sediment core from the Baltic Proper. *Environ. Sci. Technol.* 29: 346-355.

Kobayashi, H., Yamamoto, M. and Aono, R. (1998) Appearance of a stress-response protein, phage-shock protein A, in *Escherichia coli* exposed to hydrophobic organic solvents. *Microbiol.* 144:353-359.

Kolter, R., Inuzuka, M. and Helinski, D. R. (1978) Transcomplementation-dependent replication of a low molecular weight origin fragment from plasmid R6K. *Cell* 15: 1199-1208.

Kortepeter M, Christopher G, Cieslak T, *et al*, eds. (2010) *USAMRIID's Medical Management of Biological Casualties Handbook*. Fort Detrick, MD: US Army Medical Research Institute of Infectious Diseases. Pp: 44–52.

Krauss, P., Mahnke, K. and Freire, L. (1995) Determination of PCDD/F in forest soils of Brazil. *Organohalogen Compd* 24: 357-361.

Kullik, I., Fritsche, S., Knobel, H., Sanjuan, J., Hennecke, H. and Fischer, H-M. (1991) *Bradyrhizobium japonicum* has two differentially regulated, functional homologs of the σ54 gene (*rpoN*). *J. Bacteriol.* 173: 1125-1138.

Kumamaru, T., Suenaga, H., Mitsuoka, M., Watanabe, T. and Furukawa. K. (1998) Enhanced degradation of polychlorinated biphenyls by directed evolution of biphenyl dioxygenase. *Nat. Biotechnol.* 16: 663-666.

Kumar, A., Chandel, D., Bala, I., Muwalia, A. and Mankotiya, L. (2010) Managing water pollution all the way through well-designed environmental biotechnology: A review. The *IUP Journal of Biotechnology*, Vol. IV: 45-56

Kustu, S., Santero, E., Popham, D. and Keener, J. (1989) Expression of  $\sigma^{54}$  (*ntrA*)-dependent genes is probably united by a common mechanism. *Microbiol. Rev.* 53: 367-376.

L'Abbée, J. B., Barriault, D. and Sylvestre, M. (2005). Metabolism of dibenzofuran and dibenz-p-dioxin by the biphenyl dioxygenase of *Burkholderia xenovorans* LB400 and *Comamonas testosteroni* B-356. *Appl. Microbiol. Biotechnol.* 67, 506–514.

Laurie, A. D. and Lloyd-Jones, G. (1999) The *phn* genes of *Burkholderia* sp. strain RP007 constitute a divergent gene cluster for polycyclic aromatic hydrocarbon catabolism. *J. Bacteriol.* 181: 531-540.

Leahy, J. G., Johnson, G. R. and Olsen, R. H. (1997) Cross-regulation of toluene monooxygenases by the transcriptional activators TbmR and TbuT. *Appl. Environ. Microbiol.* 63: 3736-3739.

Lee, S. Y. and Broadman, B. W. (2004) Biodegradation of 1,3,5-trinitro-1,3,5-triazine (RDX). *J. Environ. Sci. Health* 39: 61-75.

Lessie, T. G., Hendrickson, W., Manning, B. D. & Devereux, R. (1996). Genomic complexity and plasticity of *Burkholderia cepacia*. *FEMS. Microbiol Lett* 144, 117–128.

Lipman, D. J. and Pearson, W. R. (1985) Rapid and sensitive protein similarity searches. *Science* 227: 1435-1441.

Loffler, F., Lingens, F. and Muller, R. (1995) Dehalogenation of 4-chlorobenzoate. Characterization of 4-chlorobenzoyl-coenzyme A dehalogenase from *Pseudomonas* sp. CBS3. *Biodegradation*. 6: 203-212.

Lorber, M., Saunders, P., Ferrario, J., Leese, W., Winters, D., Cleverly, D., Schaum, J., Deyrup, C., Ellis, R., Walcott, J., Dupuy, A., Byrne, C. and McDaniel, D. (1997) A statistical survey of dioxin-like compounds in United States pork fat. *Organohalogen Compounds* 32: 238–244.

Lu, Z., Min, H., Wu, S. and Ruan, A. (2003) Phylogenetic and degradation characterization of *Burkholderia cepacia* WZ1 degrading herbicide quinclorac. *J. Environ. Sci. Health B*. 38: 771-782.

LUA (1997) Materialen, No. 43 Identification of relevant industrial sources of dioxins and furans in Europe, Landesumweltamt Nordrhein - Westfalen.

Mahenthiralingam, E., Simpson, D. A. and Speert, D. P. (1997) Identification and characterisation of a novel DNA marker associated with epidemic *Burkholderia cepacia* strains recovered from patients with cystic fibrosis. *J. Clin. Microbiol.* 35, 808–816.

Mahenthiralingam, E., Urban, T. A. and Goldberg, J. B. (2005) The multifarious, multireplicon *Burkholderia cepacia* complex. *Nature Rev. Microbiol.* 3: 144-155.

Mahenthiralingam, E., Vandamme, P., Campbell, M. E. and Henry, D. A., Gravelle, A. M., Wong, L. T. K., Davidson, A. G. F., Wilcox, P. G., Nakielna, B. and Speert, D. P. (2001) Infection with *Burkholderia cepacia* complex genomovars in patients with cystic fibrosis: virulent transmissible strains of genomovar III can replace *Burkholderia multivorans*. *Clin. Infect. Dis.* 33: 1469–1475.

Markey, K. M., Glendinning, K. J., Morgan, J. A. W., Hart, C. A. and Winstanley, C. (2006) *Caenorhabditis elegans* killing assay as an infection model to study the role of type III secretion in *Burkholderia cenocepacia*. *J. Med. Microbiol.* 55: 967-969.

Martin- Verstraete, I., Stulke, J., Klier, A. and Rapoport, G. (1995) Two different mechanisms mediate catabolite repression of the *Bacillus subtilis* levanase operon. *J. Bacteriol.* 177: 6919-6927.

McGowan, C., Fulthorpe, R., Wright, A. and Tiedje, J. M. (1998) Evidence for interspecies gene transfer in the evolution of 2,4-dichlorophenoxyacetic acid degraders. *Appl. Environ. Microbiol.* 64: 4089-4092.

McKay, G. (2002) Dioxin characterisation, formation and minimisation during municipal solid waste (MSW) incineration: *Rev. Chem Engineering Journal*, 86(3): 343–368.

Merlin C, Springael, D, Mergeay M and Toussaint (1997) Organisation of the bph gene cluster of transposon Tn4371, encoding enzymes for the degradation of biphenyl and 4-chlorobiphenyl compounds. *Mol. Gen. Genet.* 253: 499-506.

Merrick, M. and Chambers, S. (1992) The helix-turn-helix motif of sigma 54 is involved in recognition of the -13 promoter region. *J Bacteriol.* 174:7221–7226.

Merrick, M. J. (1993) In a class of its own — the RNA polymerase sigma factor σ<sub>54</sub> (σN). *Mol. Microbiol.* 10: 903-909.

Metcalf, W.W., Jiang, W., Wanner, B.L. (1994) Use of the rep technique for allele replacement to construct new *Escherichia coli* hosts for maintenance of R6K gamma origin plasmids at different copy numbers. *Gene* 138:1-7.

Mohammadi, M. and Sylvestre, M. (2005) Resolving the profile metabolites generated during oxidation of dibenzofuran and chlorodibenzofurans by the biphenyl catabolic pathway enzymes. *Chem. Biol.* 12: 835-846.

Monna, L., Omori, T. and Kodama, T. (1993) Microbial degradation of dibenzofuran, fluorine and dibenzo-p-dioxin by *Staphylococcus auriculans* DBF63. *Appl. Environ. Microbiol.* 59: 285-289.

Morawski, B., Eaton, R., Rossiter, J., Guoping, S., Griengl, H and Ribbons, D. (1997) 2-Naphthoate catabolic pathway in *Burkholderia* strain JT 1500. *J. Bacteriol.* 179: 115-121.

Moris, M., Dombrecht, B., Xi, C., Vandeleyer, J. and Michiels, J. (2004) Regulatory role of *Rhizobium etli* CNAPF512 fnrN during synmiosis. *Appl. Environ. Microbiol.* 70: 1287-1296.

Mouz, S., Coursange, E. and Toussaint, A (2001) *Ralstonia metallidurans* CH34 RpoN sigma factor and the control of nitrogen metabolism and biphenyl utilization. *Microbiol.* 147: 1947-1954.

Mueller, J. G., Devereux, R., Sabtavy, D. L., Lantz, S. E. Willis, S. G. and Pritchard, P. H. (1997) Phylogenetic and physiological comparisons of PAH-degrading bacteria from geographical diverse soils. *Antonie van Leeuweenhoek.* 71: 329-343.

Mukerjee-Dhar, G., Hatta, T., Shimura, M. and Kimbara, K. (1997) Analysis of changes in congeners selectivity during PCB degradation by *Burkholderia* sp. strain TSN101 with increasing concentration of PCB and characterization of the *bphBCD* genes and gene products. *Arch. Microbiol.* 169: 61-70.

Mytelka, D. S. and Chamberlain, M. J. (1996) *Escherichia coli fliAZY* operon. *J. Bacteriol.* 178: 24-34.

Nelson, M. J. K., Montgomery, S. O., O'Neill, O. J. and Pritchard, P. H. (1986) Aerobic metabolism of trichloroethylene by a bacterial isolate. *Appl. Environ. Microbiol.* 52:383-384.

Nguay, V., Lemeshev, Y., Sadowwski, L. and Crawford, G. (2005) Cutaneous melioidosis in a man who was taken as prisoner of war by the Japanese during World War II. *J. Clin. Microbiol.* 43: 970-972.

Niermann, W. C., DeShazer, D., Kim, H. S., Tettelin, H., Nelson, K. E., Feldblyum, T., Ulrich, R. L., Ronning, C. M., Brinkac, L. M., Daugherty, S. C., Davidsen, T. D., Dimitrov, G., Dodson, R. J., Durkin, A. S., Gwinn, M. L., Haft, D. H., Khouri, H., Kolonav, J. F., Madupu, R., Mohammoud, Y., Nelson, W. C., Radune, D., Romero, C. M., Sarria, S., Selengut, J., Shamblin, C., Sullivan, S. A., White, O., Yu, Y., Zafar, N., Zhou, L. and Faser, C. M. (2004) Structural flexibility in the *Burkholderia mallei* genome. *Proc. Natl. Acad. Sci. USA* 101: 14246-14251.

Nishino, S. F., Paoli, G. C. and Spain, J. C. (2000) Aerobic degradation of dinitrotoluenes and pathway for bacterial degradation of 2,6-dinitrotoluene. *Appl. Environ. Microbiol.* 66: 2139–2147.

Noguera, D. R. and Freedman, D. L. (1996) Reduction and acetylation of 2,4-dinitrotoluene by a *Pseudomonas aeruginosa* strain. *Appl. Environ. Microbiol.* 62: 2257-2263.

Nojiri, H. and Omori, T. (2002) Molecular bases of aerobic bacterial degradation of dioxins: involvement of angular dioxygenation. *Biosci. Biotechnol. Biochem.* 66: 2001-2016.

Nojiri, H., Habe, H. and Omori, T. (2001) Bacterial degradation of aromatic compounds via angular dioxygenation. *J Gen Appl Microbiol.* 47: 279-305.

O'Carroll, M. R., Kidd, T. J., Coulter, C., Smith, H. V., Rose, B. R., Harbour, C. and Bell, S. C. (2003) *Burkholderia pseudomallei*: another emerging pathogen in cystic fibrosis. *Thorax* 58: 1087-1091.

O'Sullivan, L. A. and Mahenthiralingam, E. (2005) Under the microscope: biotechnological potential within the genus *Burkholderia*. *Lett. Appl. Microbiol.* 41: 8-11.

OECD, 1984. *Terrestrial Plants, Growth Test. OECD Guidelines* (208). Organization for Economic Cooperation and Development, Paris, France.

Orgam, A., Wuhua, S., Brockman, F. J. and Fredrickson, J. K. (1994) Isolation and characterization of RNA for low biomass deep-subsurface and sediments. *Appl. Environ. Microbiol.* 61: 763-768.

O'Toole, G., Kaplan, H. B. and Kolter, R. (2000) Biofilm formation as microbial development. *Annu. Rev. Microbiol.* 54: 49-79.

Palleroni, N. J. (1984) Genus I *Pseudomonas* Migula 1894, 237<sup>AL</sup>. In Krieg, N. R. and Holt, J. G. (eds), *Bergey's Manual of Systematic Bacteriology* volume 1, The Williams and Wilkins company, Baltimore, USA.

Palleroni, N. J. and Holmes, B. (1981) *Pseudomonas cepacia* sp. nov., nom. rev. *Int. J. Syst. Bact.* 31: 479-481.

Parke, J. L. and Gurian-Sherman, D. (2001) Diversity of the *Burkholderia cepacia* complex and implications for risk assessment of biological control strains. *Ann. Rev. Phytopathol.* 39: 225-258.

Parnell, J. J., Park, J., Denef, V., Tsoi, T., Hashsham, S., Quensen, J. and Tiedje, J. M. (2006). Coping with polychlorinated biphenyl (PCB) toxicity: Physiological and genome-wide responses of *Burkholderia xenovorans* LB400 to PCB-mediated stress. *Appl. Environ. Microbiol.* 72: 6607-6614.

Pearson, J. P., Pesci, E. C. and Iglewski, B. H. (1997) Roles of *Pseudomonas aeruginosa* *las* and *rhl* quorum-sensing systems in control of elastase and rhamnolipid biosynthesis genes. *J. Bacteriol.* 179: 5756–5767.

Peres, C. M., Van Aken, B. Naveau, H. and Agathos, S. N. (1999) Continuous degradation of mixtures of 4-nitrobenzoate and 4-aminobenzoate by immobilized cells of *Burkholderia cepacia* strain PB4. *Appl. Microbiol. Biotechnol.* 52: 440-445.

Pfeifer, F., Truper, H.G., Klein, J. and Schacht, S. (1993) Degradation of diphenylether by *Pseudomonas cepacia* Et4: enzymatic release of phenol from 2,3-dihydroxydiphenylether. *Arch Microbiol* 159: 323-9.

Poggio, S., Osorio, A., Dreyfus, G. and Camarena, L. (2006).Transcriptional specificity of RpoN1 and RpoN2 involves differential recognition of the promoter sequences and specific interaction with the cognate activator proteins. *J. Biol. Chem.* 281: 27205–27215.

Ponce, B. L., Latorre, V. K., Gonzales, M. And Seeger, M. (2011) Antioxudant compounds improved PCB-degradation by *Burkholderia xenovorans* strain LB400. *Enzyme Microb. Technol.* 49: 509-516.

Pawlowski, J. and Shingler, V. (1994) Genetics and biochemistry of phenol degradation by *Pseudomonas* sp. CF600. *Biodegradation* 5: 219-236.

Pratt, L. A. and Kolter, R. (1998) Genetic analysis of *Escherichia coli* biofilm formation: roles of flagella, motility, chemotaxis and type I pili. *Mol. Microbiol.* 30: 285-293.

Priefert, H., Krüger, N., Jendrossek, D., Schmidt, B. and Steinbüchel, A. (1992) Identification and molecular characterization of the gene coding for acetaldehyde dehydrogenase II (*acoD*) of *Alcaligenes eutrophus*. *J. Bacteriol.* 174: 899-907.

Quensen, J. F. and Matsumura, F. (1983) Oxidative degradation of 2,3,7,8-Tetrachlorodibenzo-p-dioxin by microorganism. *Environ Toxicol Chem* 2: 261-268.

Ralser, M., Querfurth, R., Warnatz, H. J., Lehrach, H., Yaspo, M. L. and Krobitsch, S. (2006) An efficient and economic enhancer mix for PCR. *Biochem. Biophys. Res. Commun.* 347: 747-751.

Ramos, J. L., Marques, S. and Timmis, K. N. (1997) Transcriptional control of the *Pseudomonas* TOL plasmid catabolic operons is achieved through an interplay of host factors and plasmid-encoded regulators. *Annu Rev Microbiol*, 51, 341–373.

Redondo-Nieto M, Lloret, J, Larenas, J., Barahona E., Navazo, A., Martinez-Granero, F., Capdevila, S., Rivilla, R. and Martin, M. (2008) Transcriptional organization of the region encoding the synthesis of the flagellar filament in *Pseudomonas fluorescens*. *J. Bacteriol.* 190:4106–4109.

Reitzer, L. and Schneider, B. L. (2001) Metabolic context and possible physiological themes of σ54-dependent genes in *Escherichia coli*. *Microbiol Mol. Biol. Rev.* 65: 422-444.

Reitzer, L. J. (1996a) Ammonia assimilation and the biosynthesis of glutamine, aspartate, asparagine, L-alanine and D-alanine: In Neidhardt *et. al.* (ed) *Escherichia coli and Salmonella: Cellular and molecular biology*, 2<sup>nd</sup> ed. ASM Press, Washington, D. C. pp 391-407.

Reitzer, L. J. (1996b) Sources of nitrogen and their utilization: In Neidhardt *et. al.* (ed) *Escherichia coli and Salmonella: cellular and molecular biology*, 2<sup>nd</sup> ed. ASM Press, Washington, D. C. pp. 380-390.

Rice, J. F., Menn, F.-M., Hay, A. G. Sanseverino, J. and Sayler, G. S. (2004) Natural selection for 2,4,5-trichlorophenoxyacetic acid mineralizing bacteria in agent orange contaminated soil. *Biodegradation*. 16: 501-512.

Richardson, J., Stead, D. E., Elphinstone, J. G. and Coutts, R. H. A. (2002) Diversity of *Burkholderia* species from woodland rhizosphere environments. *J. Appl. Microbiol.* 93: 616-630.

Rose, C. L., Rose, N. L., Harlock, S. And Fernandes, A. (1997) An historical record of polychlorinated dibenzo-p-dioxin (PCDD) and plochlorinated dibenzofuran (PCDF) deposition to a remote lake site in north-west Scotland, UK. *Sci. Total Environ.* 198: 161-173.

Rozen, S. and Skaletsky, H. J. (2000) Primer3 on the WWW for general users and for biologist programmers. In: Krawetz, S. and Misener, S. (eds) *Bioinformatics Methods and Protocols: Methods in Molecular Biology*. Humana Press, Totowa, NJ, pp 365-386

Sajjan, U. S., Xie, H., Lefebre, M. D., Valvano, M. A. and Forstner, J. F. (2003) Identification and molecular analysis of cable pilus biosynthesis genes in *Burkholderia cepacia*. *Microbiol.* 149: 961 - 971.

Sajjan, U. S., Corey, M., Karmali, M. A. and Forstner, J. F. (1992) Binding of *Pseudomonas cepacia* to normal human intestinal mucin and respiratory mucin from patients with cystic fibrosis. *J. Clin. Invest.* 89: 648-656.

Sajjan, U. S., Sun, L., Goldstein, R. and Forstner, J. F. (1995). Cable (cbl) type II pili of cystic fibrosis-associated *Burkholderia (Pseudomonas) cepacia*: nucleotide sequence of the *cblA* major subunit pilin gene and novel morphology of the assembled appendage fibers. *J. Bacteriol.* 177, 1030-1038.

Saldias, M. S., Lamothe, J., Wu, R. and Valvano, M. A. (2008) *Burkholderia cenocepacia* requires the *RpoN* sigma factor for biofilm formation and intracellular trafficking within macrophage. *Infect. Immun.* 76: 1059-1067.

Samuels, S. B., Moss, C. W. and Weaver, R. E. (1973) The fatty acids of *Pseudomonas multivorans* (*Pseudomonas cepacia*) and *Pseudomonas kingie*. *J. Gen. Microbiol.* 74: 275-279.

Sander, P., Wittich, R., Fortnagel, P., Wilkes, H. and Francke, W. (1991) Degradation of 1,2,4-trichloro- and 1,2,4,5-tetrachlorobenzene by *Pseudomonas* strains. *Appl. Environ. Microbiol.* 57: 1430-1440.

Sanseverino, J., Applegate, B. M., King, J. M. H., Sayler, G. S. (1993) Plasmid mediated mineralization of naphthalene, phenanthrene and anthracene. *Appl. Environ. Microbiol.* 59: 1931-1937.

Schlormann, M., Schmidt, E. and Knackmuss, H. (1990) Different types of dienelactone hydrolase in 4-fluorobenzoate-utilizing bacteria. *J. Bacteriol.* 172: 5112-5118.

Schreiner, G., Wiedmann, T., Schimmel, H. and Ballschmiter, K. (1997) Influence of the substitution pattern on the microbial degradation of mono- to tetrachlorinated dibenzo-p-dioxin and dibenzofuran. *Chemosphere* 34: 1315-1331.

Schweizer, H. P., Klassen, T., Hoang, T. (1996) Improved methods for gene analysis and expression in *Pseudomonas* spp. In: Nakazawa, T., Fukukawa, K., Hass, D., and Silver, S. (eds) *Molecular biology of pseudomonads*. ASM Press, Washington DC, pp 229–237.

Scragg, A. (1999) *Environmental biotechnology*. Addison Wesley Longman, Singapore.

Seeger, M., Camara, B. and Hofer, B. (2001) Dehalogenation, denitration, dehydroxylation and angular attack on substituted biphenyls and related compounds by a biphenyl dioxygenase. *J. Bacteriol.* 183: 3548-3555.

Selifonov, S. A., Slepkin, A. V., Adanin, V. M., Nefedova, M. Y. and Starovoitov, I. I. (1991) Oxidation of dibenzofuran by *Pseudomonas* strains harbouring plasmids of naphthalene degradation. *Mikrobiologiya*. 1991;60:67-71.

Selvartnam, S., Schoedel, B. A., McFarland, B. L. and Kulpa, C. F. (1995) Application of reverse transcriptase PCR for monitoring expression of the catabolic *dmpN* gene in a phenol-degrading sequence batch reactor. *Appl. Environ. Microbiol.* 61: 3981-3985.

Shoham, D. (1998) Chemical and biological weapons in Egypt. *Nonproliferation Rev.* 5: 48-58.

Sinsabaugh, H. A. and Howard, G. W. (1975) Emendation of the description of *Pseudomonas cepacia* Burkholder (synonyms: *Pseudomonas multivorans* Stanier *et al.*, *Pseudomonas kingae* Jonsson; EO-1 Group). *Int. J. Syst. Bact.* 25: 187-201.

Skerman, V. B. D., McGowan, V. and Sneath, P. A. H. (1980) Approved lists of bacterial names. *Int. J. Syst. Bact.* 30: 225-420.

Snell, J. J. S., Hill, L. R., Lapage, S. P. and Curtis, M. A. (1972) Identification of *Pseudomonas cepacia* Burkholder and its synonymy with *Pseudomonas kingie* Jonsson. *Int. Syst. Bact.* 22: 127-138.

Song, B., Shoemaker, N. B., Gardner, J. F. and Salyers, A. A. (2007) Integration site selection by the *Bacteroides* conjugative transposon CTnBST. *J. Bacteriol.* 189: 6594-6601.

Sousa, S. A., Ramos, C. G. and Leitão, J. H. (2011) *Burkholderia cepacia* complex: Emerging multihost pathogens equipped with a wide range of virulence factors and determinants. *Intl J. Microbiol*, vol. 2011, 9 pages

Spain, J. and Nishino, S. (1987) Degradation of 1,4-dichlorobenzene by a *Pseudomonas* sp. *Appl. Environ. Microbiol.* 53: 1010-1019.

Spanggord, R. J., Spain, J. C., Nishino, S. F. and Mortelmans, K. E. (1991) Biodegradation of 2,4-dinitrotoluene by a *Pseudomonas* sp. *Appl. Environ. Microbiol.* 57: 3200–3205.

Speert, D. P., Henry, D., Vandamme, P., Corey, M. and Mahenthiralingam, E. (2002). Epidemiology of *Burkholderia cepacia* complex in patients with cystic fibrosis, Canada. *Emerg. Infect. Dis.* 8, 181–187.

Stanmore, B. R. (2004) The formation of dioxins in combustion systems. *Combustion and Flame.* 136(3): 398–427.

Strubel, V., Rast, H. G., Fietz, W., Knackmuss, H.-J. and Engesser, K. H. (1989). Enrichment of dibenzofuran utilizing bacteria with high co-metabolic potential towards dibenzodioxin and other anellated aromatics. *FEMS Microbiol Lett* 58: 233–238.

Studholme, D. J. and Buck, M. (2000) The biology of enhancer-dependent transcriptional regulation in bacteria: insights from genome sequences. *FEMS. Microbiol. Lett.* 186: 1-9.

Studholme, D.J. and Dixon, R. (2003) Domain architectures of sigma-54-dependent transcriptional activators. *J. Bacteriol.* 185: 1757-1767.

Sutherland, M. A. (1997) Dioxin and furan extraction, and trace metal leaching from selected building materials for housing. PhD thesis. University of Dundee

Sverdrup, L. E., Krogh, P. H., Nielsen, T., Kjær, C and Stenersen, J. (2003) Toxicity of eight polycyclic aromatic compounds to red clover (*Trifolium pretense*), ryegrass (*Lolium perenne*), and mustard (*Sinapis alba*). *Chemosphere* 53: 993-1003.

Symons, Z. C. and Bruce, N. C. (2006) Bacterial pathways for degradation of nitroaromatics. *Nat. Prod. Rep.* 23:845–850.

Takenaka, S., Okugawa, S., Kadowaki, M., Murakami, S. and Aoki, K. (2003) The metabolic pathway of 4-aminophenol in *Burkholderia* sp.strain AK-5 differs from that of aniline and aniline with C-4 substituents. *Appl. Environ. Microbiol.* 69: 5410-5413.

Taylor, M., Butler, R., Chambers, S., Casimiro, M., Badii, F. and Merrick, M. (1996). The *RpoN*-box motif of the RNA polymerase sigma factor  $\sigma^N$  plays a role in promoter recognition. *Mol. Microbiol.* 22: 1045-1054.

*The American People's Dioxin Report* (1999) The Center for Health, Environment and Justice, U.S.A.

Thőny, B. and Hennecke, H. (1989) The -24/-12 promoter comes of age. *FEMS. Microbiol. Rev.* 63: 341-358.

Tomich, M., Griffith, A., Herfst, C. A., Burns, J. L. and Mohr, C. D. (2003). Attenuated virulence of a *Burkholderia cepacia* type III secretion mutant in a murine model of infection. *Infect. Immun.* 71, 1405–1415.

Tomich, M., Herfst, C. A., Golden, J. W. and Mohr, C. D. (2002) Role of flagella in host cell invasion by *Burkholderia cepacia*. *Infect. Immun.* 70: 1799-1806.

Tsang, J. S. (2004) Molecular biology of the *Burkholderia cepacia* complex. *Adv. Appl. Microbiol.* 54: 71-91.

U.S. Environmental Protection Agency, 1996. *Ecological Effects Test Guidelines (OPPTS 850.4200): Seed Germination/Root Elongation Toxicity Test*. USEPA.

Urakami, T., Ito-Yoshida, C., Araki, H., Kijima, T., Suzuki, K. and Komagata, K. (1994) Transfer of *Pseudomonas plantarii* and *Pseudomonas glumae* to *Burkholderia* sp p. and description of *Burkholderia vandii* sp. nov. *Int. J. Syst. Bact.* 44: 235-245.

Vacca, D. J., Bleam, W. F. and Hickey, W. J. (2005) Isolation of soil bacteria adapted to degrade humic acid-sorbed phenanthrene. *Appl. Environ. Microbiol.* 71: 3797-3805.

Vanaporn, M., Vattanaviboon, P., Thongboonkerd, V. and Korbsrisate, S. (2008) The rpoE operon regulates heat stress response in *Burkholderia pseudomallei*. *FEMS Microbiol. Lett.* 284: 191-196.

Vandamme, P., Henry, D., Coenye, T., Nzula, S., Vancanneyt, M., LiPuma, J. J., Speert, D. P., Govan, J. R. W. and Mahenthiralingam, E. (2002) *Burkholderia anthina* sp. nov. and *Burkholderia pyrrhociniae*, two additional *Burkholderia cepacia* complex bacteria, may confound results of new molecular diagnostics tools. *FEMS Immunol. Med. Microbiol.* 33: 143-149.

Vandamme, P., Holmes, B., Coenye, T., Goris, J., Mahenthiralingam, R., LiPuma, J. J. and Govan, J. R. W. (2003) *Burkholderia cenocepacia* sp. nov. – a new twist to an old story. *Res. Microbiol.* 154: 91-96.

Vandamme, P., Holmes, B., Vancanneyt, M., Coenye, T., Hoste, B., Coopman, R., Revets, H., Lauwers, S., Gillis, M., Kersters, K. and Govan, J. R. W. (1997) Occurrence of multiple genomovars of *Burkholderia cepacia* in cystic fibrosis patients and proposal of *Burkholderia multivorans* sp. nov. *Int. J. Syst. Bact.* 47: 1188-1200.

Vandamme, P., Mahenthiralingam, E., Holmes, B., Hoste, B., De Vos, P., Henry, D. and Speert, D. P. (2000) Identification and population structure of *Burkholderia stabilis* sp. nov. (formerly *Burkholderia cepacia* genomovar IV) *J. Clin. Microbiol.* 38: 1042-1047.

Vandamme, P., Opelt, K., Knochel, N., Berg, C., Schonmann, S., DeBrant, E., Eberl, L., Falsen, E. and Berg, G. (2007) *Burkholderia bryophila* sp. nov. and *Burkholderia megapolitana* sp. nov., moss-associated species with antifungal and plant-growth-promoting properties. *Int. J. Syst. Evol. Microbiol.* 57, 2228-2235.

Vanlaere, E., LiPuma, J. J., Baldwin, A., Henry, D., DeBrant, E., Mahenthiralingam, E., Speert, D., Dowson, C. and Vandamme, P. (2008) *Burkholderia latens* sp. nov., *Burkholderia diffusa* sp. nov., *Burkholderia arboris* sp. nov., *Burkholderia seminalis* sp. nov. and *Burkholderia metallica* sp. nov., novel species within the *Burkholderia cepacia* complex. *Int. J. Syst. Evol. Microbiol.* 58: 1580-1590.

Vermis, K., Coenye, T., LiPuma, J. J., Mahenthiralingam, E., Nelis, H. J. and Vandamme, P. (2004) Proposal to accommodate *Burkholderia cepacia* genomovar VI as *Burkholderia dolosa* sp. nov. *Int. Syst. Evol. Microbiol.* 54: 689-691.

Warner, M., Eskenazi, B., Mocarelli, P., Gerthoux, P. M., Samuels, S. and Needham, L. (2002) Serum dioxin concentrations and breast cancer risk in the Seveso women's health study. *Environmental Health Perspectives* 110:625–628.

Watanabe, T., Inoue, R., Kimura, N. and Furukawa, K. (2000) Versatile transcription of biphenyl catabolic *bph* operon in *Pseudomonas pseudoalcaligenes* KF707. *J Biol Chem* 275: 31016–31023.

Weightman, A. J., Topping, A. W., Hill, K. E., Lee, L. L., Sakai, K., Slater, J. H. and Thomas, A. W. (2002) Transposition of DEH, a broad-host-range transposon flanked by ISPpu12, in *Pseudomonas putida* is associated with genomic rearrangements and dehalogenase gene silencing. *J. Bacteriol.* 184:6581–6591.

West, S. E., Schweizer, H. P., Dall, C., Sample, A. K. and Runyen-Janecky, L. J. (1994). Construction of improved *Escherichia–Pseudomonas* shuttle vectors derived from pUC18/19 and sequence of the region required for their replication in *Pseudomonas aeruginosa*. *Gene* 148, 81–86.

Wheelis, M. (1998) First shots fired in biological warfare. *Nature* 395: 213.

Wigneshweraraj, S. R., Kuznedeloz, K., Severinov, K. and Buck, M. (2003) Multiple roles of the RNA polymerase  $\beta$  subunit flap domain in  $\sigma$ 54-dependent transcription. *J. Biol. Chem.* 278: 3455-3465.

Wilkes, H., Wittich, R., Timmis, K. N., Fortnagel, P. and Francke, W. (1996) Degradation of chlorinated dibenzofurans and dibenzo-p-dioxins by *Sphingomonas* sp. strain RW1. *Appl. Environ. Microbiol.* 62: 367-371.

Williams, P. A., Jones, R. M. and Shaw, L. E. (2002) A third transposable element, IS*Ppu*12, from the toluene-xylene catabolic plasmid pWW0 of *Pseudomonas putida* mt-2. *J. Bacteriol.* 184:6572-6580.

Wilson, M. S., Bakermans, C. and Madsen, E. (1999) In situ, real time catabolic expression: Extraction and characterization of naphthalene dioxygenase mRNA transcripts from groundwater. *Appl. Environ. Microbiol.* 65: 80-87.

Wittich, R. M., Wilkes, H., Sinnwell, V., Francke, W. and Fortnagel, P. (1992) Metabolism of dibenzo-p-dioxin by *Sphingomonas* sp. strain RW1. *Appl. Environ. Microbiol.* 58: 1005-1010.

Wosten, M. M. (1998) Eubacterial sigma-factors. *FEMS. Microbiol. Rev.* 22:127-150.

Yabuuchi, E., Kosako, Y., Oyaizo, H., Yano, I., Hotta, H., Hashimoto, Y., Ezaki, T. and Arakawa, M. (1992) Proposal of *Burkholderia* gen. nov and transfer of seven species of the genus *Pseudomonas* homology group II to the new genus, with the type species *Burkholderia cepacia* (Palleroni and Holmes 1981) comb. nov. *Microbiol. Immun.* 36: 1251-1275.

Yip, E. S., Grublesky, B. T., Hussa, E. A. and Visick, K. L. (2005) A novel, conserved cluster of genes promotes symbiotic colonization and sigma-dependent biofilm formation by *Vibrio fischeri*. *Mol Microbiol.* 57:1485–1498.

Yoder-Himes, D. R., Chain, P. S. G., Zhu, Y., Wurtzel, O., Rubin, E. M., Tiedje, J. M. and Sorek, R. (2009) Mapping the *Burkholderia cenocepacia* niche response via high-throughput sequencing. *Proc. Natl. Acad. Sci. USA* 106: 3976–3981.

Yu, Y., Kim, H. S., Chua, H. H., Lin, C. H., Sim, S. H., Lin, D., Derr, A., Engels, R., DeShazer, D., Birren, B., Nierman, W. C. and Tan, P. (2006). Genomic patterns of pathogen evolution revealed by comparison of *Burkholderia pseudomallei*, the causative agent of melioidosis, to a virulent *Burkholderia thailandensis*. *BMC Microbiol.* 6: 46

Zaitsev, G., Tsoi, T., Grishenkov, V., Plotnikova, E. and Boronin, A. (1991) Genetic control of degradation of chlorinated benzoic acids in *Arthrobacter globiformis*, *Corynebacterium sepedonicum* and *Pseudomonas cepacia* strains. *FEMS Microbiol. Lett.* 65: 171-176.

Zhang, H., Hanada, S., Shigematsu, T., Shibuya, K., Kamagata, Y., Kanagawa, T. and Kurane, R. (2000) *Burkholderia kururiensis* sp. nov., a trichloroethylene (TCE)-degrading bacterium isolated from an aquifer polluted with TCE. *Int. J. Syst. Evol. Microbiol.* 50: 743-749.

Zhao Y., Ma Z., Sundin G.W. (2005) Comparative genomic analysis of the pPT23A plasmid family of *Pseudomonas syringae*. *J Bacteriol* 187: 2113-2126.

Zhao, N., Qu, C., Wang, E. and Chen, W. (1995) Phylogenetic evidence for the transfer of *Pseudomonas cocovenenans* (van Damme *et. al.* 1960) to the genus *Burkholderia* as *Burkholderia cocovenenans* (van Damme *et. al.* 1960) comb. nov. *Int. J. Syst. Bacteriol.* 45:600-603.

Zielinski, N. A., Maharaj, R., Roychoudhury, S., Danganan, C. E., Hendrikson, W. and Chakrabarty, A. M. (1992) Alginate synthesis in *Pseudomonas aeruginosa*: environmental regulation of the *algC* promoter. *J. Bacteriol.* 174: 7680-7688.

Zimmer, D. P., Soupene, E., Lee, H. L., Wendisch, V. F., Khodursky, A. B., Peter, B. J., Bender, R. A. and Kustu, S. (2000) Nitrogen regulatory protein C-controlled genes of *Escherichia coli*: scavenging as a defense against nitrogen limitation. *Proc. Natl. Acad Sci. USA* 97: 14671-14679.