

Bibliography

Abd-Alla, M. H. and Omar, S. A. (2001) Survival of *rhizobia/bradyrhizobia* and a rock-phosphate-solubilizing fungus *Aspergillus niger* on various carriers from some agro-industrial wastes and their effects on nodulation and growth of faba bean and soybean. *J. Plant Nutr.* **24**: 261-272.

Abril, A., Zurdo-Pineiro, J. L., Peis, A., Rivas, R. and Velazquez E (2007) Solubilization of phosphate by a strain of *Rhizobium leguminosarum bv trifolii* isolated from *Phaseolus vulgaris* in El Chaco Arido soil (Argentina). In Velazquez E, Rodriguez-Berrueco C (eds) Book Series: Developments in Plant and Soil Sciences. Springer, The Netherlands. 135-138.

Aditya, Bhargu., Abhrajyoti Ghosh, Dhruvajyoti Chattopadhyay (2009) Co-inoculation effects of nitrogen fixing and Phosphate solubilising microorganisms on teak (*Tectona grandis*) and indian redwood (*Chukrasia tubularis*). *Journal of Biological Sciences*. **1**: ISSN: 2076-9946.

Aebi, H. (1984) Catalase *in Vitro*. *Method Enzym* **105**: 121-126.

Aeron, A., Kumar, S., Pandey, P. & Maheshwari, D. K. (2011). Emerging Role of Plant Growth Promoting Rhizobacteria in Agrobiolgy. *Bacteria in Agrobiolgy: Crop Ecosystems*. (Lakeland) (D. K. Maheshwari, Ed.). Berlin, Heidelberg: Springer Berlin Heidelberg.

Ae N, Arihara J, Okada K (1991) Phosphorus response of chickpea and evaluation of phosphorus availability in Indian Alfisols and Vertisols. In: Johansen C, Lee KK, Sahrawat KL (eds) Phosphorus nutrition of grain legumes. Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), 33-41

Afzal, A. and Bano, A. (2008) *Rhizobium* and Phosphate Solubilizing Bacteria Improve the Yield and Phosphorus Uptake in Wheat (*Triticum aestivum*). *International Journal of Agricultural Biology*. **10 (Suppl 1)**: 85-88.

Agnihotri, V. P. (1970) Solubilization of insoluble phosphates by some soil fungi isolated from nursery seedbeds. *Can. J. Microbiol.* **16**: 877-880.

- Ahmed, S.** (1995) Agriculture–Fertilizer interface in Asia issues of growth and sustainability. Oxford and IBH publishing Co, New Delhi.
- Ahmed, N, Shahab, S.** (2011) Phosphate solubilization: Their mechanism genetics and application. *Int. J. Microbiol.* **9**: 4408-4412.
- Akinrinde, E. A.** (2006) Strategies for improving crops' use-efficiencies of fertilizer nutrients in sustainable agricultural systems. *Pak. J. Nutrition* **5** :185-193
- Alagawadi, A. R. and Gaur, A. C.** (1992) Inoculation of *Azospirillum brasilense* and Phosphate-Solubilizing Bacteria on Yield of Sorghum (*Sorghum bicolor* L. Moench) in Dry Land. *Tropical Agric.*, **69**: 347–50.
- Aleksandrov, V.G., Blagodyr, R.N. and Iiiev, I.P.,** (1967) Liberation of phosphoric acid from apatite by silicate bacteria. *Mikrobiyol Zh. (Kiev)*, **29**: 111-114.
- Alikhani, H. A., Saleh-Rastin, N. and Antoun, H.** (2006) Phosphate solubilization activity of rhizobia native to Iranian soils. *Plant Soil* **287**: 35-41.
- Ames, B. N.** (1966). Assay of inorganic phosphate, total phosphate and phosphatases. *Methods Enzymol* **8**, 115–118.
- Ameyama, M., Nonobe, M., Shinagawa, E., Matsushita, K., Taikimoto, K., and Adachi, O.** (1986) Purification and characterization of the quinoprotein D-glucose dehydrogenase apoenzyme from *Escherichia coli*. *Agric. Biol. Chem.* **50**: 49–57.
- Anastassiadis, S. & Rehm, H.-J.** (2005) Continuous citric acid secretion by a high specific pH dependent active transport system in yeast *Candida oleophila* ATCC 20177. *Electron J Biotechnol* **8**:146–161.
- Anderson, G. M. and Burnham, W. C.** (1983) Feldspar solubility and the transport of aluminium under metamorphic conditions. *American. J. Science.* **283**:A, 283-297
- Anthony, C.** (2001) Pyrroloquinoline quinone (PQQ) and quinoprotein enzymes. *Antioxid Redox Signal.* **3**:757-774.

Aoshima, M., Ishii, M., Yamagishi, A., Oshima, T. & Igarashi, Y. (2003) Metabolic characteristics of an isocitrate dehydrogenase defective derivative of *Escherichia coli* BL21(DE3). *Biotechnol Bioeng* **84**: 732–737.

Arcand, M. M. & Schneider, K. I. M. D. (2006) Plant- and microbial-based mechanisms to improve the agronomic effectiveness of phosphate rock: a review. *Anais Da Academia Brasileira De Ciencias* **78**: 791-807.

Archana, G, Buch A, Naresh Kumar G (2012) Pivotal role of organic acid secretion by rhizobacteria in plant growth promotion, In: Satyanarayan T, Johri BN, Prakash A, editors. *Microorganisms in Sustainable Agriculture and Biotechnology*. Springer, pp. 35-53.

Archana, G., Buch, A. & Kumar, G. N. (2012) *Microorganisms in Sustainable Agriculture and Biotechnology*. *Metabolic Engineering* (T. Satyanarayana & B. N. Johri, Eds.). Dordrecht: Springer Netherlands.

Asea, P. E. A., Kucey, R. M. N. and Stewart, J. W. B. (1988). Inorganic phosphate solubilization by two *Penicillium* species in solution culture and soil. *Soil Biol. Biochem.* **20**: 459- 464.

Hall, B. G. (1982) Chromosomal mutation for citrate utilization by *Escherichia coli* K-12. *J. Bacteriology*, **151**: 269-273.

Olson, B.H., & I. Thronton, (1982) “The resistance patterns to metals of bacterial populations in contaminated land” *Journal of Soil Science*, **33**: 271-277,

Khan-Babu, S., Yeo, C., Martin, W. L., Duron, M. R., Rogers, R. D. and Goldstein, A. H. (1995). Cloning of a mineral phosphate-solubilizing gene from *Pseudomonas cepacia*. *Appl. Environ. Microbiol.* **61**: 972-978.

Baker, A.J.M., Brooks, R.R., (1989) Terrestrial higher plants which hyperaccumulate metallic elements-a review of their distribution, ecology, and phytochemistry. *Biorecovery* **1**: 81-126

Baldani, J. I., Baldani, V. L. D., Seldin, L. and Dobereiner, J. (1986) Characterization of *Herbaspirillum seropedicae* gen. nov., sp. nov., a root-associated nitrogen-fixing bacterium. *Int. J. Syst. Bacteriol.* **36**: 86-93.

- Banik, S. and Dey, B. K.** (1982) Available phosphate content of an alluvial soil as influenced by inoculation of some isolated phosphate solubilizing microorganisms. *Plant Soil* **69**: 353–364.
- Barber, J.M.** (1980) Catalase and peroxidase in primary leaves during development and senescence. *Z. Pfl.- Physiol.*, **97**: 135–144.
- Barker, W.W., Welch, S.A., Welch S.C., and Banfield, F.,** (1998) Experimental observations of the effects of bacteria on aluminosilicate weathering. *Amer. Mineral*, **83**: 1551- 1563.
- Basu, A. and Phale, P. S.** (2006) Inducible uptake and metabolism of glucose by the phosphorylative pathway in *Pseudomonas putida* CSV86. *FEMS Microbiol.Lett.* **259**(2), 311-316
- Baya, A.M., Robert, S.B. and Ramos, C.A.** (1981) Vitamin production in relation to phosphate solubilization by soil bacteria. *Soil Biol. Biochem.* **13**: 527-532.
- Beever, R. E. and Burns, D. J. W.** (1980) Phosphorus uptake storage and utilization by fungi. *Adv. Bot. Res.* **8**: 127- 219.
- Belimov, A. A., Safronova, V. I., Sergeyeva, T. A, Egorova, T. N., Matveyeva, V. A. , Tsyganov, V. E., Borisov, A. Y., Tikhonovich, I. A., Kluge, C., Preisfeld, A., Dietz K. J., Stepanok, V. V.** (2001) Characterization of plant growth promoting rhizobacteria isolated from polluted soils and containing 1-aminocyclopropane- 1-carboxylate deaminase. *Can J Microbiol* **47**:242–252.
- Belimov, A. A., Kojemiakov, P. A. and Chuvarliyeva, C. V.** (1995) Interaction between Barley and Mixed Cultures of Nitrogen Fixing and Phosphate-Solubilizing Bacteria. *Plant Soil.* **17**: 29–37.
- Bennett, E. M., Carpenter, S. R. and Caraco, N. F.** (2001). Human impact on erodable phosphorus and eutrophication: A Global Perspective. *Bioscience* **51**: 227-234.
- Benhizia, Y., Benhizia, H., Benguedouar, A., Muresu, R., Giacomini, A., and Squartini, A.** (2004) Gamma proteobacteria can nodulate legumes of the genus *Hedysarum*. *Syst. Appl. Microbiol.* **27**:462-468.

Bert, Boesten.and Ursula, B. Priefer.(2004) The C-terminal receiver domain of the *Rhizobiumleguminosarum*bv. viciae FixL protein is required for free-living microaerobic induction of the *fnrN* promoter Microbiology **150**: 3703–3713.

Bieleski, R. L. (1973) Phosphate pools, phosphate transport, and phosphate availability. Annu. Rev. Plant Physiol. **24**: 225-252.

Boddey, R. M., de Oliveira, O. C., Urquiaga, S., Reis, V. M., Olivares, F. L., Baldani, V. L. D., and Döbereiner, J. (1995) Biological nitrogen fixation associated with sugar cane and rice: Contributions and prospects for improvement. Plant Soil **174**:195-209.

Buch, A. D., Archana. G. Naresh Kumar, G (2009) Enhance citric acid biosynthesis in *Pseudomonas fluorescence* ATCC 13525 by overexpression of the *Escherichia coli* citrate synthase gene. Microbiol. **155**: 2620-2629.

Buch, A. D, Archana, G. Naresh Kumar G (2010) Heterologous expression of phosphoenolpyruvate carboxylase enhances the phosphate solubilizing ability of fluorescent pseudomonads by altering the glucose catabolism to improve biomass yield. Bioresour. Technol. **101**: 679–687.

Buch, A. B., Archana, G. & Naresh Kumar, G. (2008) Metabolic channeling of glucose towards gluconate in phosphate-solubilizing *Pseudomonas aeruginosa* P4 under phosphorus deficiency. Res Microbiol **159**: 635–642.

Bugg, T., Foght, J. M., Pickard, M. A. and Gray, M. R. (2000) Uptake and active efflux of polycyclic aromatic hydrocarbons by *Pseudomonas fluorescens* LP6a. Appl. Environ. Microbiol. **66**: 5387–5392.

Caspi, Ron., Tomer Altman., Joseph M. Dale., Kate Dreher., Carol A. Fulcher., Fred Gilham., Pallavi Kaipa., Athikkattuvalasu S. Karthikeyan., Anamika Kothari.,Markus Krummenacker., Mario Latendresse., Lukas A. Mueller, Suzanne Paley, Liviu Popescu1, Anuradha Pujar, Alexander G. Shearer, Peifen Zhang and Peter D. Karp, (2010) The MetaCyc database of metabolic pathways and enzymes and the BioCyc collection of pathway/genome databases. Nucleic Acids Research. **38**.

Celi, L., Lamacchia, S., Marsan, F. A. and Barberis, E. (1999). Interaction of inositol hexaphosphate on clays: adsorption and charging phenomena. Soil Sci. **164**:574-585.

- Chanchal Kumar Kavita Yadav G. Archana G. Naresh Kumar** (2013) 2-Ketogluconic acid secretion by incorporation of *Pseudomonas putida* KT 2440 gluconate dehydrogenase (gad) operon in *Enterobacter asburiae* PSI3 Improves mineral phosphate solubilization. *Curr Microbiol.* **67**:388–394.
- Chao, Y. P. and Liao, J. C.** (1993) Alteration of growth yield by overexpression of phosphoenolpyruvate carboxylase and phosphoenolpyruvate carboxykinase in *Escherichia coli*. *Appl. Environ. Microbiol.* **59**: 4261–4265.
- Hyland, Charles., Quirine, Ketterings., Dale Dewing., Kristen Stockin, Karl Czymmek, Greg Albrecht. Larry Geohring** (2005) Phosphorus Basics – The Phosphorus Cycle Agronomy Fact Sheet Series Fact Sheet **12**
- Chen, Y. P., Rekha, P. D., Arun, A. B., Shen, F. T., Lai, W. A., Young, C. C.,** (2006) Phosphate solubilizing bacteria from subtropical soil and their tricalcium phosphate solubilizing abilities. *Applied Soil Ecology*, **34** (Suppl 1): 33-41.
- Choi O, Kim J, Kim JG, Jeong Y, Moon JS, Park CS and Hwang I** (2008) Pyrroloquinoline quinone is a plant growth promotion factor produced by *Pseudomonas fluorescens* B16. *Plant Physiol.* **146**: 657–668.
- Choudhury S., Panda S.K.** (2004) Role of salicylic acid in regulating cadmium induced oxidative stress in *Oryza sativa* L. roots. *Bulg. J. Plant Physiol.*, **30**: 95–110.
- Chu, C., Lu, C. and Lee, C.** (2005) Effects of inorganic nutrients on the regrowth of heterotrophic bacteria in drinking water distribution systems. *J Environ Manage* **74**: 255–263.
- Chubatsu, L. S., Monteiro, R. A., de Souza, E. M., de Oliveira, M. A. S., Yates, M. G., Wassem, R., Bonatto, A. C., Huergo, L. F. Steffens, M. A. R., Rigo, L. U. and Pedrosa, F. O.** (2012) Nitrogen fixation control in *Herbaspirillum seropedicae* *Plant Soil* **356**:197–207.
- Claudia, S. L. Vicente, Francisco Nascimento, Margarida Espada, Pedro Barbosa, Manuel Mota, Bernard R. Glick, Solange Oliveira** (2012) Characterization of Bacteria Associated with Pinewood Nematode *Bursaphelenchus xylophilus* .*PLOS ONE*. **7**: 10. e46661

- Cleton-Jansen, A. M., Goosen, N., Vink, K. and Putte, P. (1989)** Cloning, characterization and DNA sequencing of the gene encoding the Mr 50,000 quinoprotein glucose dehydrogenase from *Acinetobacter calcoaceticus*. *Mol. Gen. Genet.* **217**: 430-436.
- Cleton-Jansen, A.M., Goosen, N., Wenzel, J.T., and Putte, P. (1988)** Cloning of the gene encoding quinoprotein glucose dehydrogenase from *Acinetobacter calcoaceticus*: Evidence for the presence of a second enzyme. *J. Bacteriol.* **170**: 2121–2125.
- Cohen, S., Chang, A. C. Y. and Leslie, H. S. U. (1972)** Nonchromosomal antibiotic resistance in bacteria: Genetic transformation of *Escherichia coli* by R-factor DNA (CaCl₂/extrachromosomal DNA/plasmid). *Proc. Nat. Acad. Sci. USA* **69**: 2110-2114.
- Collins, F. M, Lascelles J. (1962)** The effect of growth conditions on oxidative and dehydrogenase activity in *Staphylococcus aureus*. *J. Gen. Microbiol.* **29**:531–535.
- Cooper James, Rachel Lombardi, David Boardman, Cynthia Carliell-Marquet. (2011)** The future distribution and production of global phosphate rock reserves. *Resources, Conservation and Recycling* **57**: 78–86.
- Cruz, R. E., de la Manalo, M. Q., Aggangan, N. S. and Tambalo, J. D. (1988)** Growth of three legume trees inoculated with VA mycorrhizal fungi and *Rhizobium*. *Plant Soil* **108**: 111-115.
- Cunningham, J. E. and Kuiack, C. (1992)** Production of citric and oxalic acids and solubilization of calcium phosphate by *Penicillium bilaji*. *Appl. Environ. Microbiol.* **58**: 1451-1458.
- De Freitas, J. R., Banerjee, M. R. and Germida, J. J. (1997)** Phosphate solubilizing rhizobacteria enhance the growth and yield but not phosphorus uptake of canola (*Brassica napus* L.). *Biol. Fertil. Soils* **24**: 358-364.
- De Maeseneire, S. L., De Mey, M., Vandedrinck, S. & Vandamme, E. J. (2006)** Metabolic characterization of *E. coli* citrate synthase and phosphoenolpyruvate carboxylase mutants in aerobic cultures. *Biotechnol Lett* **28**: 1945–1953.

de Werra. P, Pechy-Tarr M, Keel C, Maurhofer M (2009) Role of gluconic acid production in the regulation of biocontrol traits of *Pseudomonas fluorescens* CHA0. Appl Environ Microbiol **75**: 4162–4174.

Dijkstra, M., J. Frank, and J. A. Duine.(1989) Studies on electron transfer from methanol dehydrogenase to cytochrome cL, both purified from *Hyphomicrobium* X. Biochem. J. **257**:87–94.

Duarah, M. Deka , N. Saikia ,H. P. Deka Boruah (2011) Phosphate solubilizers enhance NPK fertilizer use efficiency in rice and legume cultivation. 3 Biotech **1**:227–238.

Dubois M, Gilles KA, Hamilton JK, Rebers PA, Smith F (1956) Calorimetric method for the determination of sugars and related substances, Anal. Chem., **28**: 350 - 356.

Duckworth, H. W., and Tong, E. K. (1976) Biochemistry **15**: 108-114.

Duckworth.(2003) Probing the roles of key residues in the unique regulatory NADH binding site of type II citrate synthase of *Escherichia coli*. J. Biol. Chem. **278**: 35435–35443.

Duine H (1991) Quinoproteins enzymes containing the quinonoid cofactor pyrroloquinoline quinone, topaquinone or tryptophantryptophan quinine. Eur. J. Biochem. **200** 271–284

Duff, S. M. G., Moorhead, G. B. G., Lefebvre, D. D., and Plaxton WC (1989) Phosphate starvation inducible ‘bypasses’ of adenylate and phosphate dependent glycolytic enzymes in *Brassica nigra* suspension cells. Plant Physiol. **90**, 1275–1278.

Duine J. A. (2001) Cofactor diversity in biological oxidations: implications and applications. Chem Rec. **1**:74– 83.

Elbeltagy A, Nishioka K, Sato T, Suzuki H, Ye B, Hamada T, Isawa T, Mitsui H, Minamisawa K (2001) Endophytic colonization and in planta nitrogen fixation by a *Herbaspirillum* sp. isolated from wild rice species. Appl Environ Microbiol **67**:5285–5293.

Elkoca E., Kantar, F. and Sahin, F. (2007) Influence of nitrogen fixing and phosphorus solubilizing bacteria on the nodulation, plant growth, and yield of chickpea. *J. Plant Nutrition* **31**: 157-171.

Euan K. James, Prasad Gyaneshwar, Natarajan Mathan, Wilfredo L. Barraquio, Pallavolu M. Reddy, Pietro P.M. Iannetta, Fabio L. Olivares, and Jagdish K. Ladha.(2002) Infection and Colonization of Rice Seedlings by the Plant Growth-Promoting Bacterium *Herbaspirillum seropedicae* Z67 *MPMI*.**15**: 9, 894–906.

Fairhurst, T. R., Lefroy, E. M. and Batjes, N. H. (1999) The importance, distribution and causes of P deficiency as a constraint to crop production in the tropics. *Agroforestry Forum* **9**: 2-8.

Farmer, W.R. and Liao, J.C. (1997) Reduction of aerobic acetate production by *Escherichia coli*. *Appl. Environ. Microbiol.* **63**: 3205–3210.

Feng, J., M. R. Atkinson, W. McCleary, J. B. Stock, B. L. Wanner, and A. J. Ninfa. (1992) Role of phosphorylated metabolic intermediates in the regulation of glutamine synthetase synthesis in *Escherichia coli*. *J. Bacteriol.* **174**: 6061–6070.

Rojo Fernando (2010) Carbon catabolite repression in *Pseudomonas*: optimizing metabolic versatility and interactions with the environment *FEMS Microbiol Rev* **34** 658–684.

Fleming, H. P., J. L. Etchells, and R. L. Costilow. (1985) Microbial inhibition by an isolate of *Pediococcus* from cucumber brines. *Appl. Microbiol.* **30**: 1040-1042.

Forrest H. S, Salisbury SA, Kilty C. G. (1980) A mechanism for the enzymatic oxidation of methanol involving methoxatin. *Biochem Biophys Res Commun.* **97**: 248-251.

Forrest H. S, Salisbury S. A, Sperl G. (1981) Crystallization of a derivative of a new coenzyme, methoxatin. *Biochim Biophys Acta*; **676**: 226-229.

Foster T. J. (1998) Molecular genetic analysis of staphylococcal virulence. *Methods Microbiol.* **27**: 433–454.

- Friedrich** S, Platonova NP, Karavaiko GI, Stichel E and Glombitza F (1991) Chemical and microbiological solubilization of silicates. *Acta Biotechnology* **11**:187-196.
- Fuentes-Ramírez**, L. E., Caballero-Mellado, J., Sepúlveda, J., and Martínez-Romero, E. (1999) Colonization of sugarcane by *Acetobacter diazotrophicus* is inhibited by high N-fertilization. *FEMS (Fed. Eur. Microbiol. Soc.) Microbiol. Ecol.* **29**:117-128.
- Fuhrer**, T., Fischer, E. and Sauer, U. (2005) Experimental identification and quantification of glucose metabolism in seven bacterial species. *J. Bacteriol.* **187**:1581-1590.
- Gadd**, G. M. (1999) Fungal production of citric acid and oxalic; Importance in metal speciation, physiology and biogeochemical processes. *Adv Microb Physiol.* **41**: 47-92.
- Galar**, M. L., and Boiardi, J. L. (1995) Evidence for a membrane-bound pyrroloquinoline quinone-linked glucose dehydrogenase in *Acetobacter diazotrophicus*. *Appl. Microbiol. Biotechnol.* **43**: 713-716.
- Gao**, X. R., Wang, G. K., Su, Q., Wang, Y. and An, L. J. (2007) Phytase expression in transgenic soybeans: stable transformation with a vector-less construct. *Biotechnol. Lett.* **29**: 1781-1787.
- Gardner**, J. F, Lascelles, J. (1962) The requirement for acetate of a streptomycin-resistant strain of *Staphylococcus aureus*. *J. Gen. Microbiol.* **29**:157–164.
- Ge**, Xin., Wenxi Wang., Baohua Du., Jianhua Wang., Xianghua Xiong, and Weicai Zhang (2013) Multiple pqqA genes respond differently to environment and one contributes dominantly to pyrroloquinoline quinine synthesis. *J. Basic Microbiol.* **53**: 1–12.
- Gill**, S. S and Tuteja N (2010) Reactive oxygen species and antioxidant machinery in abiotic stress tolerance in crop plants. *Plant Physiology and Biochemistry* **48**: 909-930.

- Glick, B. R** (1995) The enhancement of plant growth by free-living bacteria. *Can. J. Microbiol.* **41**: 109-117.
- Goldstein A. H. and Liu S. T.** (1987) Molecular Cloning and Regulation of a mineral phosphate solubilizing gene from *Erwinia herbicola*. *Bio/Technology* **5**: 72-74.
- Goldstein, A. H** (1986) Bacterial mineral phosphate solubilization Historical perspective and future prospects. *Am. J. Alternat. Agric.* **1**: 57-65.
- Goldstein, A. H.** (1995) Recent progress in understanding the molecular genetics and biochemistry of calcium phosphate solubilization by gram negative bacteria. *Biol. Agric. Hor.* **12**: 185-193.
- Goldstein, A. H., Rogers, R. D. and Mead, G.** (1993) Mining by microbe. *Bio/Technol.* **11**: 1250-1254.
- Goodwin, P. M, Anthony C.** (1998) The biochemistry, physiology and genetics of PQQ and PQQ containing enzymes. *Adv Microb Physiol* **40**: 1- 80.
- Goosen, N., Horsman HP, Huinen RG and van de Putte P** (1989) *Acinetobacter calcoaceticus* genes involved in biosynthesis of the coenzyme pyrrolo-quinoline-quinone nucleotide sequence and expression in *Escherichia coli* K-12. *J. Bacteriol.* **171**: 447-455.
- Goosen, N., Huinen, R. G and van de Putte P** (1992) A 24-amino-acid polypeptide is essential for the biosynthesis of the coenzyme pyrrolo-quinoline-quinone. *J. Bacteriol.* **174**: 1426-1427.
- Gulati, A, Sharma N, Vyas P, Sood S, Rahi P, Pathania V, Prasad R** (2010) Organic acid production and plant growth promotion as a function of phosphate solubilization by *Acinetobacter rhizosphaerae* strain BIHB 723 isolated from the cold deserts of the trans-Himalayas. *Arch Microbiol* **192**: 975-983.
- Gull, M., Hafeez, F. Y., Saleem, M. and Malik, K. A.** (2004) Phosphorus uptake and growth promotion of chickpea by co-inoculation of mineral phosphate solubilizing bacteria and a mixed rhizobial culture. *Aust. J. Exp. Agric.* **44**: 623-628.

Gunasekaran, S. and Pandiyarajan, P. (1995) Dual inoculation of *Rhizobium* and phosphobacteria with two forms of phosphorus in pigeonpea, p. 111. In: Microbiology Abstracts. XXXVI. Annual conference of the Association of Microbiologists of India, Hissar, India.

Guo, Y. B., Li J, Li L, Chen F, Wu W, et al. (2009) Mutations that disrupt either the *pqq* or the *gdh* gene of *Rahnella aquatilis* abolish the production of an antibacterial substance and result in reduced biological control of grapevine crown gall. Appl Environ Microbiol **75**: 6792–6803.

Gyaneshwar, P., James, E. K., Reddy, P. M. and Ladha, J. K. (2002) *Herbaspirillum* colonization increases growth and nitrogen accumulation in aluminium- tolerant rice varieties. New Phytologist. **154**: 131-145.

Gyaneshwar, P., Naresh Kumar, G. and Parekh, L. J. (1998a) Effect of buffering on the phosphate-solubilizing ability of microorganisms. World J Microbiol Biotechnol **14**: 669–673.

Gyaneshwar, P., Naresh Kumar, G. and Parekh, L. J. (1998b) Cloning of mineral phosphate solubilizing genes from *Synechocystis* PCC 6803. Curr.Sci. **74**: 1097-1099.

Gyaneshwar, P., Naresh Kumar, G., Parekh, L. J. and Poole, P. S. (2002) Role of soil microorganisms in improving P nutrition of plants. Plant Soil **245**: 83-93.

Haas, D. and Défago, G. (2005) Biological control of soil-borne pathogens by fluorescent pseudomonads. Nature Rev. Microbiol. **3**: 307-319.

Halder, A. K. and Chakrabartty, P. K. (1993) Solubilization of inorganic phosphate by *Rhizobium*. Folia Microbiol. **38**: 325-330.

Hallmann, J., Quadt-Hallmann, A., Mahaffee, W. F., and Kloepper, J. W. (1997) Bacterial endophytes in agricultural crops. Can. J. Microbiol. **43**: 895-914.

Hallmann, J., Rodriguez-Kabana, R., and Kloepper, J. W. (1999) Chitin mediated changes in bacterial communities of the soil, rhizosphere and within roots of cotton in relation to nematode control. Soil Biol. Biochem. **31**: 551-560.

- Hamdia**, A.B.E., Shaddad, M.A.K. & Doaa, M.M. (2004) Mechanisms of salt tolerance and interactive effects of *Azospirillum brasiliense* inoculation on maize cultivars grown under salt stress conditions. *Plant Growth Reg.* **44**: 165-174.
- Hameeda** B, Harini G, Rupela OP, Wani SP, Reddy G (2008) Growth promotion of maize by phosphate-solubilizing bacteria isolated from composts and macrofauna. *Microbiol. Res.* **163**:234-242.
- Han**, S. H, Kim CH, Lee JH, Park JY, Cho SM, et al. (2008) Inactivation of pqq genes of *Enterobacter intermedium* 60-2G reduces antifungal activity and induction of systemic resistance. *FEMS Microbiol. Lett.* **282**: 140-146.
- Harris**, J. N., Peter, B. New and Martin, P. M. (2006) Laboratory tests can predict beneficial effects of phosphate-solubilising bacteria on plants. *Soil Biol. Biochem.* **38**: 1521-1526.
- Hauge**, J. G. (1964) Glucose dehydrogenase of *Bacterium anitratum*: an enzyme with a novel prosthetic group. *J Biol Chem.* **239**:3630-3639.
- Hazen**, T.C., Jimenez, L. and Victoria, G.L., (1991) Comparison of bacteria from deep subsurface sediment and adjacent groundwater. *Microb. Ecol.*, **22**: 293-304.
- Hester**, K. L., Lehman, J., Najar, F., Song, L., Roe, B. A., MacGregor, C. H., Hager, P. W., Phibbs, P. V. Jr. and Sokatch, J. R. (2000) Crc is involved in catabolite repression control of the bkd operons of *Pseudomonas putida* and *Pseudomonas aeruginosa*. *J. Bacteriol.* **182**:1144-1149.
- Hiltner** L, (1904) Über neuere erfahrungen und probleme auf dem gebiet der boden bakteriologie und unter besonderer berucksichtigung der grundung und branche. *Arb. Deut. Landw. Ges.* **98**: 59-78.
- Hu**, X.F., Chen, J. and Guo, J.F., (2006) Two phosphate and potassium solubilizing bacteria isolated from Tiannu mountain, Zhejiang, China. *World J. Micro. Biotech.* **22**: 983- 990.

- Igual, J. M., Valverde A, Cervantes E, Velazquez E, (2001)** Phosphate-solubilizing bacteria as inoculants for agriculture: use of updated molecular techniques in their study. *Agronomie*, **21** (Suppl 6-7): 561-568.
- Illmer, P. and Schinner, E. (1992)** Solubilization of inorganic phosphates by microorganisms isolated from forest soils. *Soil Biol. Biochem.* **24**: 389-395.
- Inoue, H, Hayashi, N., Matsushita, A., Xinqiong, L., Nakayama, A., Sugano, S., Jiang, C.-J. and Takatsuji, H. (2013)** Blast resistance of CC-NB-LRR protein Pb1 is mediated by WRKY45 through protein-protein interaction. *Proc. Natl. Acad. Sci. USA* **110**: 9577–9582.
- Ishiguro, N, Izawa H, Shinagawa M, Shimamoto 396 T, Tsuchiya T (1992)** Cloning and nucleotide sequence of the gene (*citC*) encoding a citrate carrier from several *Salmonella* serovars. *J Biol Chem.* **267**: 9559- 9564.
- Izui, K., Ishijima, S., Yamaguchi, Y., Katagiri, F., Murata, T., Shigesada, K., Sugiyama, T. and Katsuki, H. (1986)** Cloning and sequence analysis of cDNA encoding active phosphoenolpyruvate carboxylase of the C4-pathway from maize. *Nucleic Acids Res.* **14**:1615-1628.
- James, D. W Jr, and Gutterson NI (1986)** Multiple antibiotics produced by *Pseudomonas fluorescens* HV37a and their differential regulation by glucose. *Appl. Environ. Microbiol.* **52**: 1183–1189.
- James, E K, Olivares, F L, Baldani J I, Dobereiner J. (1997)** *Herbaspirillum*, an endophytic diazotroph colonizing vascular tissue in the leaves of *Sorghum bicolor* L . Moench. *J. Exper. Bot.* **8**: 785 -797.
- James EK. (2000)** Nitrogen fixation in endophytic and associative symbiosis. *Field Crops Res.* **65**: 197–209.
- James, E. K., and F. L. Olivares. (1998)** Infection and colonization of sugarcane and other graminaceous plants by endophytic diazotrophs. *Crit. Rev. Plant Sci.* **17**:77–119.
- Johnson, J. F., Allan, D. A., Vance, C. P. and Weiblen, G. (1996)** Root carbon dioxide fixation by phosphorus-deficient *Lupinus albus*: contribution to organic acid exudation by proteoid roots. *Plant Physiol.* **112**: 19-30.

- Johnson, L. B, Cunningham BA** (1972) Peroxidase activity in healthy and leaf rust infected wheat leaves. *Phytochemistry* **11**:547–551.
- Jones, D. L. and Darrah, P. R.** (1994) Amino-acid influx at the soil-root interface of *Zea mays* L. and its implications in the rhizosphere. *Plant and Soil*. **163**: 1-12.
- Kannapiran E. and V. Sri Ramkumar** (2011) Inoculation effect of nitrogen-fixing and phosphate-solubilizing bacteria to promote growth of black gram (*Phaseolus mungo* Roxb; Eng). *Annals of Biological Research*. **2**:615-621.
- Kabir, M. M. & Shimizu, K.** (2004) Metabolic regulation analysis of *icd*-gene knockout *Escherichia coli* based on 2D electrophoresis with MALDI-TOF mass spectrometry and enzyme activity measurements. *Appl Microbiol Biotechnol* **65**: 84–96.
- Katznelson, H. and Bose, B.** (1959) Metabolic activity and phosphate dissolving capability of bacterial isolates from wheat roots in the rhizosphere and non rhizosphere soil. *Can. J. Microbiol.* **5**: 79-85.
- Kaur, R., Macleod J, Foley W, Nayudu M** (2006) Gluconic acid: An antifungal agent produced by *Pseudomonas* species in biological control of take-all. *Phytochemistry* **67**: 595–604.
- Kavita, B ., Shukla, Sapna, G. Naresh Kumar ., G. Archana** (2008) Amelioration of phytotoxic effects of Cd on mung bean seedlings by gluconic acid secreting rhizobacterium *Enterobacter asburiae* PSI3 and implication of role of organic acid *World J. Microbiol. Biotechnol.* **24**:2965-2972.
- Keys, A.** (1940) A rapid micro-Kjeldahl method. **132**:181-187.
- Khairnar, N. P., Misra, H. S. and Apte, S. K.** (2003). Pyrroloquinoline–quinine synthesized in *Escherichia coli* by pyrroloquinoline–quinone synthase of *Deinococcus radiodurans* plays a role beyond mineral phosphate solubilisation. *Biochem. Biophys. Res. Commun.* **312**: 303-308.
- Khan, M. S., A. Zaidi and P. A. Wani.** (2006) Role of phosphate solubilizing microorganisms in sustainable agriculture-A review. *Agron. Sustain. Dev.* **26**: 1-15.

- Kim KY, Jordan D, Krishnan HB** (1998) Expression of genes from *Rahnella aquatilis* that are necessary for mineral phosphate solubilization in *Escherichia coli*. FEMS Microbiol Lett **159**: 121–127.
- Kim, Y. H., Kim, C. H., Han, S. H., Kang, B. R., Cho, S. M, et al.** (2006) Expression of pqq genes from *Serratia marcescens* W1 in *Escherichia coli* inhibits the growth of phytopathogenic fungi. Plant Pathol J **22**: 323–328.
- Kim, C. H., Han, S. H., Kim, K. Y., Cho, B. H., Kim, Y. H., Koo, B. S. and Kim, Y. C.** (2003) Cloning and expression of pyrroloquinoline quinone (PQQ) genes from a phosphate-solubilizing bacterium *Enterobacter intermedium*. Curr.Microbiol.**47**: 457-461.
- Kim, K. Y., Jordan, D. and Krishnan, H. B.** (1997) *Rahnella aquatilis*, a bacterium isolated from soybean rhizosphere, can solubilize hydroxyapatite. FEMS Microbiol.Lett.**153**: 273-277.
- Kim, K. Y., Jordan, D. and Krishnan, H. B.** (1998) Expression of genes from *Rahnella aquatilis* that are necessary for mineral phosphate solubilization in *Escherichia coli*. FEMS Microbiol.Lett.,**159**: 121-127.
- Kirchhof G, Eckert B, Stoffels M, Baldani JI, Reis VM, Hartmann A** (2001) *Herbaspirillum frisingense* sp. nov., a new nitrogen-fixing bacterial species that occurs in C4- fibre plants. Int J Syst Evol Microbiol **51**:157–168.
- Kiyohara, H., Nagao, K., Kouno, K. and Yano, K.** (1982) Phenanthrene-degrading phenotype of *Alcaligenes faecalis* AFK2. Appl. Environ. Microbiol.**43**: 458-491.
- Kloepper, J. W., Lifshitz, R., Zablotowicz, R. M.,** (1989) Free-living bacterial inocula for enhancing crop productivity. Trends Biotechnol.**7** (Suppl 2): 39–43.
- Koch, B., Worm, J., Jensen, L. E., Hojberg, O. and Nybroe, O.** (2001) Carbon limitation induces σ S-dependent gene expression in *Pseudomonas fluorescens* in soil. Appl. Environ. Microbiol.**67**: 3363-3370.
- Kovach, M. E., Elzer, P. H., Hill, D. S. Robertson, G. T., Farris, M. A., Roop, R. M. II and Peterson, K. M.** (1995) Four new derivatives of the broad-host-range cloning

- vector pBBR1MCS, carrying different antibiotic-resistance cassettes. *Gene*, **166**: 175-176.
- Kpomblekou, A. K., Tabatabai, M. A. (1994)** Effect of organic acids on release of phosphorus from phosphate rocks¹. *Soil Sci.* **158**: 442-453.
- Krasensky, J, Jonak, C. (2012)** Drought, salt, and temperature stress-induced metabolic rearrangements and regulatory networks. *J Exp Bot.* Feb; **63**:1593-1608.
- Krishnaraj, P. U. and Goldstein, A. H. (2001)** Cloning of a *Serratia marcescens* DNA fragment that induces quinoprotein glucose dehydrogenase-mediated gluconic acid production in *Escherichia coli* in the presence of stationary phase *Serratia marcescens*. *FEMS Microbiol.Lett.***205**: 215-220.
- Kucey, R. M .N. (1988)** Effect of *Penicillium bilaii* on the solubility and uptake of micronutrients from soil by wheat. *Can. J. Soil Sci.* **68**: 261-270.
- Kucey, R. M. N. (1983)** Phosphate-solubilizing bacteria and fungi in various cultivated and virgin Alberta soils. *Can. J. Soil Sci.* **63**: 671-678.
- Kucey, R. M. N., Jansen, H. H. and Leggett, M. E. (1989)** Microbially mediated increases in plant-available phosphorus. *Adv. Agron.* **42**: 199–228.
- Kuklinsky-Sobral, J., Araujo, W. L., Mendes, R., Geraldi, I. O., Pizzirani-Kleiner, A. A., and Azevedo, J. L. (2004)** Isolation and characterization of soybean-associated bacteria and their potential for plant growth promotion. *Environ. Microbiol.***6**:1244-1251.
- Kumar, N. R., Arasu, V. T, Gunasekaran, P, (2002)** Genotyping of antifungal compounds producing plant growth-promoting rhizobacteria, *Pseudomonas fluorescens*. *Current Science*, **82** (Suppl 12): 1465-1466.
- Kumar, V., Behl, R. K. and Narula, N. (2001)** Establishment of phosphate solubilizing strains of *Azotobacter chroococcum* in the rhizosphere and their effect on wheat cultivars under greenhouse conditions. *Microbiol. Res.***156**: 87-93.
- Kumazawa, T, Sato K, Seno H, et al. (1995)** Levels of pyrroloquinoline quinone in various foods. *Biochem J.* **307**:331-333.

- Kumazawa T, Seno H, Suzuki O.** (1993) Failure to verify high levels of pyrroloquinoline quinone in eggs and skim milk. *Biochem Biophys Res Commun.***193**:1-5.
- Leaungvutiviroj, C., Ruangphisarn, P., Hansanimitkul, P., Shinkawa, H., Sasaki, K.**(2010) Development of a new biofertilizer with high capacity for N₂-fixation, phosphate and potassium solubilization and auxin production. *Bioscience Biotechnology and Biochemistry.***74**:1098–1101.
- Ladha, J.K. and P.M. Reddy,** (2003) Nitrogen fixation in rice systems: State of knowledge and future prospects. *Plant Soil*, **252**:151-167.
- Lehtola, M.J., Miettinen, I. T. and Martikainen, P. J.** (2002) Biofilm formation in drinking water affected by low concentration of phosphorus. *Can. J. Microbiol.***48**:494-449.
- Leisinger, K. M.** (1999) Biotechnology and food security. *Curr. Sci.* **76**: 488–500.
- Lessie, T. G. and Phibbs, P. V. Jr.** (1984) Alternative pathways of carbohydrate utilization in pseudomonads. *Annu. Rev. Microbiol.* **38**: 359–388.
- Baldotto, L. E. B. Olivares, F. L. and Bressan-Smith, R.**(2011) Structural interaction between gfp-labeled diazotrophic endophytic bacterium *Herbaspirillum seropedicae* ram10 and pineapple plantlets 'vitória'. *Brazilian Journal of Microbiology* **42**: 114-125
- Lin, T., Huang, H., Shen, F. and Young, C.** (2006) The protons of gluconic acid are the major factor responsible for the dissolution of tricalcium phosphate by *Burkholderia cepacia* CCAI74. *Biores. Technol.* **97**(7), 957-960
- Liu Y, Feng L, Hu H, Jiang G, Cai Z, Deng Y** (2012) Phosphorus release from low grade rock phosphates by low molecular weight organic acids. *J. Food, Agriculture and Environ.* **10** (1): 1001- 1007.

Liu, S. -T., Lee, L. -Y., Tai, C. -Y., Hung, C. -H., Chang, Y. -S., Wolfram, J. H., Rogers, R. and Goldstein, A. H. (1992) Cloning of an *Erwinia herbicola* gene necessary for gluconic acid production and enhanced mineral phosphate solubilization in *Escherichia coli* HB101: Nucleotide sequence and probable involvement in biosynthesis of the .

Liu, Wende., Jinling Liu., Yuese Ning., Bo Ding., Xuli Wang., Zhilong Wangand Guo-Liang Wang (2013) Recent Progress in Understanding PAMP- and Effector-Triggered Immunity against the Rice Blast Fungus *Magnaporthe oryzae* Molecular Plant. pp 3-17.

Lolkema JS (2006) Domain structure and pore loops in the 2-hydroxycarboxylate transporter family. J. Mol. Microbiol. Biotechnol. **11** (6): 318-325.

Lowry O.H., Rosenbrough N.J., Farr A.L., Randall R.J. (1951) Protein measurement with folin-phenol reagent. J. Biol. Chem., **193**: 265–275.

Lugtenberg, B. J., Dekkers, L. and Bloemberg, G. V. (2001) Molecular determinants of rhizosphere colonization by *Pseudomonas*. Annu. Rev. Phytopathol. **39**: 461-490.

Lugtenberg, Ben. J. J; Lev V. Kravchenko and Marco Simons (1999) Tomato seed and root exudate sugars: composition, utilization by *Pseudomonas* biocontrol strains and role in rhizosphere colonization

Lugtenberg, Ben and Kamilova, Faina (2009) Plant-Growth-Promoting Rhizobacteria Annu. Rev. Microbiol. **63**:541–56

Mohamed M.N., J.R. Lawrence, R.D. Robarts. (1998) Phosphorus Limitation of Heterotrophic Biofilms from the Fraser River, British Columbia, and the Effect of Pulp Mill Effluent, Microb Ecol **36**:121–130

Magnusson OT, Toyama H, Saeki M, Rojas A, Reed JC, Liddington RC, Klinman JP, Schwarzenbacher R (2004) Quinone biogenesis: Structure and mechanism of

PqqC, the final catalyst in the production of pyrroloquinoline quinone. Proceedings of the National Academy of Sciences of the United States of America. **101**(21):7913-7918.

Magnusson, O. T, Toyama H, Saeki M, Schwarzenbacher R, Klinman J. P(2004)The structure of a biosynthetic intermediate of pyrroloquinoline quinone (PQQ) and elucidation of the final step of PQQ biosynthesis. Journal of the American Chemical Society **126**(17):5342-5343.

Malarvizhi P, Ladha J K. (1999) Influence of available nitrogen and rice genotype on associative nitrogen fixation. Soil Science Society of America Journal **63**: 93-99.

Marat R. Sadykov, Vinai C. Thomas, Darrell D. Marshall, Christopher J. Wenstrom, a Derek E. Moormeier, Todd J. Widhelm, Austin S. Nuxoll, Robert Powers, Kenneth W. Bayles (2013) Inactivation of the Pta-AckA Pathway Causes Cell Death in *Staphylococcus aureus*. **195**(13) Journal of Bacteriology p. 3035–3044

Mathur, T., Singhal, S., Khan, S., Upadhyay, U.P., Fatma, F. and Rattan, A., (2006) Detection of biofilm formation among the clinical isolates of staphylococci: an evaluation of three different screening methods. Indian Journal of Medical Microbiology **24** (1):25-29.

Matsuno, K., Blais, T., Serio, A. W., Conway, T., Henkin, T. M. and Sonenshein, A. L. (1999) Metabolic imbalance and sporulation in an isocitrate dehydrogenase mutant of *Bacillus subtilis*. J. Bacteriol. **181**: 3382-3391.

Matsushita, K. and Ameyama, M. (1982) D-glucose-dehydrogenase from *Pseudomonas fluorescens*, membrane bound. Methods Enzymol. **89**: 149-154.

Mattioni, C., Gabbrielli R., Vangronsveld J., Clijsters H. (1976) Nickel and cadmium toxicity and enzymic activity in Ni-tolerant and non-tolerant populations of *Silene italica* Pers. J. Plant Physiol., **150**: 173–177.

Midgley, M. and Dawes, E. A. (1973) The regulation of transport of glucose and methyl aglucoside in *Pseudomonas aeruginosa*. Biochem. J. **132**:141-154

Misra, H.P. and I. Fridovich. (1972) The generation of superoxide radical during auto oxidation. J. Biol. Chem. **247**: 6960-6966.

- Mittler**, R, Vanderauwera S, Gollery M, Breusegem F. V (2004) Abiotic stress series. Reactive oxygen gene network of plants. Trends Plant Sci 9: 490–498
- Mohamed**, M. N., Lawrence, J. R., Robarts, R.D. (1998) Phosphorus Limitation of Heterotrophic Biofilms from the Fraser River, British Columbia, and the Effect of Pulp Mill Effluent Microb Ecol 36:121–130
- Morris**, C. J., F. Biville, E. Turlin, E. Lee, K. Ellermann, W. H. Fan, R. Ramamoorthi, , A. L. Springer and M. E. Lidstrom (1994) Isolation, phenotypic characterization and complementation analysis of mutants in *Ethylbacterium extorquens* AM1 unable to synthesize pyrroloquinoline quinone and sequence of *pqqD*, *pqqG*, and *pqqC*. J. Bacteriol. 176:1746-1755.
- Monteiro**, RA, Schmidt MA, Baura VA, Balsanelli E, Wassem R, et al. (2008) Early colonization pattern of maize (*Zea mays* L. Poales, Poaceae) roots by *Herbaspirillum seropedicae* (Burkholderiales, Oxalobacteraceae). Genet Mol Biol 31:932–937.
- Munns**, R. (2002) Comparative physiology of salt and water stress. Plant Cell Environ 25:239–250
- Nelson**, K. E., et al. (2002) Complete genome sequence and comparative analysis of the metabolically versatile *Pseudomonas putida* KT2440. Environ. Microbiol. 4(12), 799-808
- Neubauer**, P., Lin, H. Y. and Mathisizik, B. (2003) Metabolic load of recombinant protein production: Inhibition of cellular capacities for glucose uptake and respiration after induction of a heterologous gene in *Escherichia coli*. Biotechnol. Bioeng. 83(1), 53-64.
- Sharan**, B. S. and Nehra, V. (2011) Plant Growth Promoting Rhizobacteria: A Critical Review. Life Sciences and Medicine Research. 21: LSMR-21
- Nguyen**, N. T., Maurus, R., Stokell, D. J., Ayed, A., Duckworth, H. W. and Brayer, G. D. (2001) Comparative analysis of folding and substrate binding sites between regulated hexameric type II citrate synthases and unregulated dimeric Type I enzymes. Biochem. 40:13177-13187

- Nielsen, J. (2001) Metabolic engineering. Appl. Microbiol. Biotechnol. **55**: 263-283
- Nivedita P. Khairnar, Hari S. Misra and Shree K. Apte (2003) Pyrroloquinoline-quinone synthesized in *Escherichia coli* by pyrroloquinoline-quinone synthase of *Deinococcus radiodurans* plays a role beyond mineral phosphate solubilization. Biochemical and Biophysical Research Communications **312**: 303-308.
- Thompson, Nowak. B, Gould S. J, Kraus J, Loper J. E, (1994) Production of 2, 4-diacetylphloroglucinol by the biocontrol agent *Pseudomonas fluorescens* Pf-5. Canadian Journal of Microbiology, **40** (Suppl 12): 1064-1066.
- Olivares, F L, James E. K, Baldani J.I, Dobereiner J. (1997) Infection of mottled stripe disease susceptible and resistant varieties of sugarcane by the endophytic diazotroph *Herbaspirillum*. New Phytologist. **35** : 723-737.
- Olivares, F. L, Baldani V. L. D, Reis, M., Baldani, J.I, Dobereiner. (1996) Occurrence of the endophytic diazotrophs *Herbaspirillum* spp. in roots, stems and leaves predominantly of Gramineae. Biology and Fertility of Soils **21**: 197-200.
- Omar, S. A. (1998) The role of rock phosphate solubilizing fungi and vesicular arbuscular mycorrhizae (VAM) in growth of wheat plants fertilized with rock phosphate. World J. Microb. Biot. **14**: 211-219
- Ozanne, P. G. (1980) Phosphate nutrition of plants – general treatise. The role of phosphorus in agriculture, p. 559-589. In: F. E. Khasawneh, E. C. Sample, and E. J. Kamprath (ed.), American Soc. Agron. Crop Sci., Soc. America. Soil Sci. Soc. America, Madison, WI, USA.
- Paglia, D.E. and W.N. Valentine. (1987) Studies on the quantitative and qualitative characterization of glutathione peroxidase. J. Lab. Med. **70**: 158-165.
- Pal, S.S., (1999) Interaction of an acid tolerant strain of phosphate solubilizing bacteria with a few acid tolerant crops. Plant Soil. **213**: 221-30
- Papagianni, M. (2007) Advances in citric acid fermentation by *Aspergillus niger*: Biochemical aspects, membrane transport and modeling. Biotechnol. Adv. **25**(3), 244-263

- Papagianni, M., Wayman, F. and Matthey, M. (2005)** Fate and role of ammonium ions during fermentation of citric acid by *Aspergillus niger*. Appl. Environ. Microbiol. **71**(11), 7178-7186
- Park KH, Lee OM, Jung HI, Jeong JH, Jeon YD, Hwang DY, Lee CY, Son HJ (2010)** Rapid solubilization of insoluble phosphate by a novel environmental stress-tolerant *Burkholderia vietnamiensis* M6 isolated from ginseng rhizospheric soil. Appl Microbiol Biotechnol **86**:947–955
- Park, S. -J., McCabe, J., Turana, J. and Gunsalus, R. P. (1994)** Regulation of the citrate synthase (gltA) gene of *Escherichia coli* in response to anaerobiosis and carbon supply: role of the *arcA* gene product. J Bacteriol **176**, 5086–5092.
- Patel, D. K., Archana G. and Naresh Kumar G. (2008)** Variation in the nature of organic acid secretion and mineral phosphate solubilization by *Citrobacter* sp. in the presence of different sugars. Curr. Microbiol. **56**(2), 168-174
- Patil, K. R., Akesson, M. and Nielsen, J. (2004)** Use of genome-scale microbial models for metabolic engineering. Curr. Opin. Biotechnol. **15**(1), 64-69
- Patten, C. L, Glick, B. R (2002)** The role of bacterial indole acetic acid in the development of the host plant root system. Appl Environ Microbiol **68**:3795–3801
- Pedrosa, F. O, Monteiro R.A, Wassem R, Cruz L. M, Ayub R. A, Colauto N. B, Fernandez MA, et al. (2011)** Genome of *Herbaspirillum seropedicae* strain SmR1, a specialized diazotrophic endophyte of tropical grasses. PLoS genetics **7**: e1002064.
- Pereira, J.A.R., Cavalcante, V.A., Baldani, J.I., Doberner, J., (1988)** Field inoculation of sorghum and rice with *Azospirillum* spp. and *Herbaspirillum seropedicae*. Plant and Soil **110**: 269–274.
- Peterson, G. L. (1979)** Review of the Folin phenol quantitation method of Lowry, Rosenberg, Farr and Randall. Anal Biochem **100**: 201.
- Phue, J. -N., Noronha, S. B., Hattacharyya, R., Wolfe, A. J. and Shiloach, J. (2005)** Glucose metabolism at high density growth of *E. coli* B and *E. coli* K: Differences in metabolic pathways are responsible for efficient glucose utilization in *E. coli* B as

- determined by microarrays and Northern Blot analyses. *Biotechnol. Bioeng.* **90**(7), 805-820
- Perveen, S., M. S. Khan and A. Zaidi.** (2002) Effect of rhizospheric microorganisms on growth and yield of green gram (*Phaseolus radiatus*). *Indian J. Agric. Sci.* **72**: 421-423.
- Pikovskaya, R. I.** (1948) Mobilization of phosphorus in soil in connection with vital activity of some microbial species. *Mikrobiologiya* **17**: 362-370.
- Ponmurugan, P. and Gopi, C.** (2006) In vitro production of growth regulators and phosphatase activity by phosphate solubilizing bacteria. *Afr. J. Biotechnol.* **5**: 348-350
- Puehringer, S., Metlitzky M, Schwarzenbacher R.** (2008) The pyrroloquinoline quinone biosynthesis pathway revisited: a structural approach *BMC Biochem.* **9**:8.
- Quay, S. C., Friedman, S. B. and Eisenberg, R. C.** (1972) Gluconate regulation of glucose catabolism in *Pseudomonas fluorescens*. *J. Bacteriol.* **112**: 291-298.
- Qureshi, M. A., M. A. Shakir, A. Iqbal, N. Akhtar and A. Khan** (2011) CO-Inoculation of phosphate solubilizing bacteria and rhizobia for improving growth and yield of mungbean (*Vigna radiata* L.) *The Journal of Animal & Plant Sciences*, **21**(3): 2011, Page: 491-497.
- Qin Lu ., Jiang Hui ., Tian Jiang ., Zhao Jing ., Liao Hong** (2011) Rhizobia enhance acquisition of phosphorus from different sources by soybean plants *Plant Soil* **349**:25-36
- Radwan, T. E. E., Mohamed, Z. K. and Reis, V. M.,** (2005) Aeration and salt effects on indoleacetic acid production by diazotrophic bacteria. *Perqui Agropecu. Bras.*, **40** (10) : 997-1004.
- Radwan, T.E., S.; Mohamed, Z.K.; Reis, V.M.** (2004). Efeito da inoculação de *Azospirillum* e *Herbaspirillum* na produção de compostos indólicos em plântulas de milho e arroz. *Pesq. Agropec. Bras.* **39**: 987- 994.

- Rajpurohit**, Y. S., Gopalakrishnan, R, and Misra, H. S (2008) Involvement of a protein kinase activity inducer in DNA double strand break repair and radioresistance of *Deinococcus radiodurans*. *J. Bacteriol.* **190**: 3948–3954
- Reyes**, I., Bernier, L., Simard, R. R. and Antoun, H. (1999) Effect of nitrogen source on the solubilization of different inorganic phosphates by an isolate of *Penicillium rugulosum* and two UV induced mutants. *FEMS Microbiol. Ecol.* **28**: 281-290.
- Richardson**, A. E. (1994) Soil micro-organisms and phosphate availability. p. 50-62. *In*: C. E. Pankhurst, B. M. Doube, V. V. S. R. Gupts, and P. R. Grace (ed.), *Soil Biota Management in Sustainable Agriculture*. CSIRO, Melbourne, Australia.
- Richardson**, A. E. and Hadobas, P. A. (1997). Soil isolates of *Pseudomonas* spp. that utilize inositol phosphates. *Can. J. Microbiol.* **43**:509–516.
- Richardson**, A. E, Simpson R. J (2011) Soil microorganisms mediating phosphorus availability. *Plant Physiol* **156**:989–996
- Ritu**, Shah and David W. Emerich. (2006) Isocitrate Dehydrogenase of *Bradyrhizobium japonicum* Is Not Required for Symbiotic Nitrogen Fixation with Soybean *Journal of Bacteriology*, Nov., p. 7600–7608
- Rodriguez**, E., Wood, Z. A., Karplus, P. A. and Lei, X. G. (2000) Site-directed mutagenesis improves catalytic efficiency and thermostability of *Escherichia coli* pH 2.5 acid phosphatase/phytase expressed in *Pichia pastoris*. *Arch. Biochem. Biophys.* **382**: 105-112.
- Rodríguez**, H. and Fraga, R. (1999) Phosphate solubilizing bacteria and their role in plant growth promotion. *Biotechnol. Adv.* **17**, 319–339
- Rojo** Fernando. (2010) Carbon catabolite repression in *Pseudomonas* :optimizing metabolic versatility and interactions with the environment *FEMS Microbiol Rev* **34** 658–684
- Roncato-Maccari**, L.D.B.; Ramos, H.J.O.; Pedrosa, F.O.; Alquini, Y.; Yates, M.G.; Rigo, L.U.; Steffens, M.B.; Chubatsu, L.S.; Souza, E.M.(2003) Root colonization

systemic spreading and contribution of *Herbaspirillum seropedicae* to growth of rice seedling. *Symbiosis*.**35**:261-270.

Roos, W. and Luckner, M. (1984) Relationships between proton extrusion and fluxes of ammonium ions and organic acid in *Penicillium cyclopium*. J. Gen. Microbiol. **130**: 1007-1014.

Rose Adele Monteiro ; Eduardo Balsanelli ; Roseli Wassem ; Anelis M. Marin ; Liziane C. C. Brusamarello-Santos ; Maria Augusta Schmidt ; Michelle Z. Tadra-Sfeir ; Vânia C. S. Pankievicz ; Leonardo M. Cruz ; Leda S. Chubatsu ; Fabio O. Pedrosa ; Emanuel M. Souza(2012) *Herbaspirillum*-plant interactions: microscopical, histological and molecular aspects Plant Soil **356**:175–196

Roy, S.S., Mittra, B., Sharma, S., Das, T.K., Babu, C.R., (2002) Detection of root mucilage using an anti-fucose antibody. Ann. Botany **89**: 293–299.

Rucker Robert; Winyoo Chowanadisai; Masahiko, Nakano. (2009) Potential Physiological Importance of Pyrroloquinoline Quinone Alternative Medicine Review **14**:(3)

S. Bragadeeswaran, R. Jeevapriya, K. Prabhu, S. Sophia Rani, S. Priyadharsini and T. Balasubramanian (2011) Exopolysaccharide production by *Bacillus cereus* GU812900, a fouling marine bacterium . African Journal of Microbiology Research.**5**(24), pp. 4124-4132,

Sa T -M and Israel D W (1991) Energy status and functioning of phosphorus-deficient soybean nodules. Plant Physiol. **97**: 928–935

S. Shahab, N. Ahmed.(2011) Growth Promotion Of Mung Beans By Bacterial Pyrroloquinoline. The Internet Journal of Genomics and Proteomics.**1**:(1). DOI: 10.5580/209f

Safura Babu-Khan, Tiong Chia Yeo, Warham L. Martin, Manuel R. Duron, Robert D. Rogers, and Alan H. Goldstein (1995) Cloning of a Mineral Phosphate-Solubilizing Gene from *Pseudomonas cepacia* Applied and Environmental Microbiology.**61**:p. 972–978

- Sagoe**, C. I., Ando, T., Kouno, K. and Nagaoka, T. (1998) Relative importance of protons and solution calcium concentration in phosphate rock dissolution by organic acids. *Soil Sci. Plant Nutr.***44**: 617- 625.
- Sambrook**, J. & Russell, D. W. (2001) *Molecular Cloning: a Laboratory Manual*, 3rd edn. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory.
- Santacecilia**, Alessandra, Federica Matteucci, Paola Cacchio, Claudia Ercole, Maddalena Del Gallo (2012) Biofilm formation by endophytic bacteria *Environmental Engineering and Management Journal***11**:(3) Supplement, S149
- Sauer**, Uwe., Eikmanns, Bernhard. J.(2005) The PEP–pyruvate–oxaloacetate node as the switch point for carbon flux distribution in bacteria *FEMS Microbiology Reviews* **29**: 765–794
- Schippers**, B, Bakker AW and Bakker PA, (1987) Interaction of deleterious and beneficial rhizosphere microorganisms and the effect of cropping practices. *Annual Review of Phytopathology*, **25**: 339-358.
- Schleissner**, C., Reglero, A. and Luengo, J. M. (1997) Catabolism of D-glucose by *Pseudomonas putida* U occurs via extracellular transformation into D-gluconic acid and induction of a specific gluconate transport system. *Microbiol.***143**: 1595-1603
- Schnider**, U., C. Keel, C. Voisard, G. De'fago, and D. Haas.(1995) Tn5- directed cloning of *pqq* genes from *Pseudomonas fluorescens* CHA0: mutational inactivation of the genes results in overproduction of the antibiotic pyoluteorin. *Appl. Environ. Microbiol.***61**:3856–3864.
- Schwarzenbacher**, R, Stenner-Liewen F, Liewen H, Reed JC, Liddington RC(2004) Crystal structure of PqqC from *Klebsiella pneumonia* at 2.1 Å resolution. *Proteins* **56**(2):401-403.
- Seidl**, K, Muller S, Francois P, Kriebitzsch C, Schrenzel J, Engelmann S, Bischoff M, Berger-Bachi B. (2009) Effect of a glucose impulse on the CcpA regulon in *Staphylococcus aureus*. *BMC Microbiol.***9**:95.
- Serre**, P. A. (1969) Citrate synthase. *Methods Enzymol* **13**: 3–11.

- Sharon**, Fibach-Paldi, Saul Burdman & Yaacov Okon (2012) Key physiological properties contributing to rhizosphere adaptation and plant growth promotion abilities of *Azospirillum brasilense* FEMS Microbiol Lett **326**: 99–108
- Sharma**, V, Kumar V, Archana G, Naresh Kumar G (2005) Substrate specificity of glucose dehydrogenase (GDH) of *Enterobacter asburiae* PSI3 and rock phosphate solubilization with GDH substrates as C sources. Can J Microbiol **51**:477–482. doi:10.1139/w05-032
- Sheng**, X. F, Huang W. Y and Yin Y. X (2003) Effects of application of silicate bacteria fertilizer and its potassium release. Journal of Nanjing Agricultural University **23**:43–46.
- Shashidhar**, B, Podile A. R (2009) Transgenic expression of glucosedehydrogenase in *Azotobacter vinelandii* enhances mineralphosphate solubilization and growth of sorghum seedlings. Microb Biotechnol **4**:521–529
- Shen**, Yao-Qing, Florence Bonnot., Erin M. Imsand., Jordan M. RoseFigura., Kimmen Sjölander, and Judith P. Klinman. (2012) Distribution and Properties of the Genes Encoding the Biosynthesis of the Bacterial Cofactor, Pyrroloquinoline Quinone Biochemistry **51**: 2265–2275
- Sinha**, B. K, Basu P. S (1981) Indole-3-acetic acid and metabolism in root nodules of *Pongamia pinnata* L. Pierre. Biochem Physiol Pflanzen. **176**: 218–227.
- Smidt**, C. R, Unkefer C. J, Houck D. R and Rucker R. B (1991) Intestinal absorption and tissue distribution of [14C] pyrroloquinoline quinone in mice. Proc. Soc. Exp. Biol. Med. **197**: 27–31
- Somerville**, G. A, Proctor R. A. (2009) At the crossroads of bacterial metabolism and virulence factor synthesis in staphylococci. Microbiol. Mol. Biol. Rev. **73**:233–248.
- Sparks** and Huang, P.M., (1985) physical chemistry of soil potassium. In Potassium in agriculture (ed.) Munson, R.D., American Soc. Agron. J., pp.201–276.

Sperber, J. I. (1958) The incidence of apatite-solubilizing organisms in the rhizosphere and soil. *Aust. J. Agric. Res.* **9**: 778-781.

Sridevi, M., Mallaiah K. V., Yadav NCS (2007) Phosphate solubilization by *Rhizobium* isolates from *Crotalaria species*. *J. Plant Sci.* **2**: 635-639.

Srivastava, S., Kausalya, M. T., Archana, G., Rupela, O. P. & Naresh Kumar, G. (2006). Efficacy of organic acid secreting bacteria in solubilization of rock phosphate in acidic alfisols. In First International Meeting on Microbial Phosphate Solubilization. Series: Developments in Plant and Soil Sciences, pp. 117–124, vol. 102. Edited by E. Velazquez & C. Rodriguez-Barrueco. Berlin: Springer.

Steinberg, F. M., Gershwin M. E and Rucker R. B. (1994) Dietary pyrroloquinoline quinone growth and immune response in BALB/c mice. *J. Nutr.* **124**: 744–753

Stevenson, F. J. (1986) Cycles of soil carbon, nitrogen, phosphorus, sulphur micronutrients. Wiley, New York.

Stokell, D. J., Lynda, J. D., Maurus R., Nguyen N. T., Sadler G., Choudhary K., Hultin PG, Brayer GD, Duckworth HW (2003) Probing the roles of key residues in the unique regulatory NADH binding site of type II citrate synthase of *Escherichia coli*. *J Biol Chem.* **278**: 35435–35443.

Sturz, A. V., Christie, B. R., Matheson, B. G., and Nowak, J. (1997) Biodiversity of endophytic bacteria which colonize red clover nodules, roots, stems and foliage and their influence on host growth. *Biol. Fertil. Soils* **25**: 13-19.

Subba Rao, N. S. (1982) Phosphate solubilization by soil microorganisms. p. 295-305. In: N.S. Subba Rao (ed.), *Advances in Agricultural Microbiology*, Oxford and IBH, New Delhi.

Sugumaran, P. and Janarthnam, B., (2007) Solubilization of potassium containing minerals by bacteria and their effect on plant growth. *World J. Agric. Sci.* **3**(3): 350-355.

Tandon, H. L. S. (1987) Phosphorus research and production in India. Fertilizer development and consultation organization, New Delhi. Tang, J., Leung, A., Leung, C.

and Lim, B. L. 2006. Hydrolysis of precipitated phytate by three distinct families of phytases. *Soil Biol. Biochem.* **38**: 1316-1324.

Tang, J., Leung, A., Leung, C. and Lim, B. L. (2006) Hydrolysis of precipitated phytate by three distinct families of phytases. *Soil Biol. Biochem.* **38**: 1316-1324.

Tapia, J., Munoz, J., Gonzalez, F., Blazquez, M., Malki, M., and Ballester, A. (2009) Extraction of extracellular polymeric substances from the acidophilic bacterium *Acidiphilium* 3.2 Sup (5). *Water Sci Technol* **59**: 1959–1967.

Tharwat, E. I-Sayed El-Desouk Radwan , Mohamed Kamel Zeinat Massena and Veronica Reis (2004) Effect of inoculation of *Azospirillum* and *Herbaspirillum* in production of indole compounds in seedlings of maize and rice . *Msh. agropec. bras.*, Brasilia. **39**:10, 987-994,

Thomas, G. V. (1985) Occurrence and ability of phosphate-solubilizing fungi from coconut plant soils. *Plant Soil* **87**: 357-364.

Tilman, D., K.G. Cassman, P.A. Matson, R.L. Naylor, and S. Polasky. (2002) Agricultural sustainability and intensive production practices. *Nature* **418**:671-677.

Tiwari, V.N., L.K. Lehri and A.N. Pathak, (1989) Effect of inoculating crops with phospho-microbes. *Exp. Agric.* **25**: 47–50

Toyoda H, Utsumi R, (1991) Method for the prevention of *Fusarium* diseases and microorganisms used for the same. US Patent No. **4**: 988, p. 586.

Toyama H, Furuya N, Saichana I, Ano Y, Adachi O, Matsushita K (2007) Membrane-bound, 2-keto D-gluconate-yielding D-gluconate dehydrogenase from *Gluconobacter dioxyaceticus* IFO 3271, molecular properties and gene disruption. *Appl Environ Microbiol* **73**:6551–6556

Ullman, W. J. Kirchman, D. L and Welch S.A (1996) Laboratory evidence for microbially mediated silicate mineral dissolution in nature. *Chemical Geology* **132**:11-17.

Ulrich Schillinger and Friedrich-Karl (1989) Lucke Antibacterial Activity of *Lactobacillus sake* Isolated from Meat Applied and Environmental Microbiology. 1901-1906

Underwood, S. A., Buszko, M. L., Shanmugam, K. T. and Ingram, L. O. (2002) Flux through citrate synthase limits the growth of ethanologenic *Escherichia coli* KO11 during xylose fermentation. *Appl. Environ. Microbiol.* **68**(3), 1071–1081

Unge, A., Tombolini, R., Davey, M.E., de Bruijn, F.J., Jansson, J.K., (1998) GFP as a marker gene. In: Akkermans, A.D.L., Van Elsas, J.D., de Bruijn, F.J. (Eds.), *Molecular Microbial Ecology Manual*. Kluwer Academic Publishers, Dordrecht, pp. 6.1.13 1 – 6.1.13 16.

USGS. Mineral Commodity Summaries (2010) Washington: U.S. Geological Survey & U.S. Department of the Interior.

van Schie, B. J., Hellingwerf, K. J., van Dijken, J. P., Elferink, M. G., van Dijl, J. M., Kuenen, J. G. and Konings, W. N. (1985) Energy transduction by electron transfer via a pyrrolo-quinoline quinone-dependent glucose dehydrogenase in *Escherichia coli*, *Pseudomonas aeruginosa* and *Acinetobacter calcoaceticus* (var. *lwoffi*). *J. Bacteriol.* **163**: 493-499

Vanbleu, E., Marchal, K. and Vanderleyden, J. (2004) Genetic and physical map of the pLAFR1 vector. *DNA Seq.* **15**(3), 225-227

Vance, C. P., Graham, P. H., and Allan, D. L. (2000) Biological nitrogen fixation: Phosphorus Ba critical future need? p. 509-518. In: F.O. Pederosa, M. Hungria, M. G. Yates, and W. E. Newton (ed.), *Nitrogen fixation from molecules to crop productivity*. Kluwer Academic Publishers, Dordrecht, Netherlands. Vig, A. C. and Dev, G. 1984. Phosphorus adsorption characteristics of some acid and alkaline soils. *J. Indian Soc. Soil Sci* **32**: 235-239.

Vance, C. P., Uhde-Stone, C., Allan, D. L. (2003) Phosphorus acquisition and use: Critical adaptations by plants for securing a nonrenewable resource. *New Phytologist* **157**: 423–447

- Vassilev, N, Vassileva M and Nikolaeva I** (2006) Simultaneous P-solubilizing and biocontrol activity of microorganisms: Potentials and future trends. *Appl. Microbiol. Biotechnol.* **71**: 137–144
- Velterop, J. S, Sellink, E., Meulenber, J. J., David, S., Bulder, I., Postma, P. W.** (1995) Synthesis of pyrroloquinoline quinone in vivo and in vitro and detection of an intermediate in the biosynthetic pathway. *J Bacteriol* **177**:5088–5098
- Vessey, J. K.** (2003) Plant growth promoting rhizobacteria as biofertilizers. *Plant Soil* **255**: 571-586.
- Vikram A, Algawadi AR, Krishnaraj PU, Mahesh KKS** (2007) Transconjugation studies in *Azospirillum* sp. negative to mineral phosphate solubilization. *World J Microbiol Biotechnol* **23**: 1333–1337
- Viollier, P. H., Nguyen, K. T., Minas, W., Folcher, M., Dale, G. E. & Thompson, C. J.** (2001) Roles of aconitase in growth, metabolism, and morphological differentiation of *Streptomyces coelicolor*. *J Bacteriol* **183**: 3193–3203.
- Vitoria Lillian Estrela Borges Baldotto; Fábio Lopes Olivares; Ricardo Bressan-Smith** (2011) Structural interaction between *gfp*-labeled diazotrophic endophytic bacterium *Herbaspirillum seropedicae* RAM 10 and pineapple plantlets Brazilian Journal of Microbiology **42**: 114-125
- Volesky B., May Phillips H. A.** (1995) Biosorption of heavy metals by *Saccharomyces cerevisiae*. *Appl. Microbiol. Biotechnol.* **42**: 797-806.
- Vora, M. S. and Shelat, H. N.** (1998) Impact of addition of different carbon and nitrogen sources on solubilization of rock phosphate by phosphate-solubilizing microorganisms. *Ind. J. Agric. Sci.* **68**: 292- 294.
- W. Fang, J.Y. Hu and S.L. Ong.** (2009) Influence of phosphorus on biofilm formation in model drinking water distribution systems *Journal of Applied Microbiology* **106** 1328–1335.
- Walker, T. S., Bais, H. P., Grotewold, E. and Vivanco, J. M.** (2003) Root exudation and rhizosphere biology. *Plant Physiol.* **132**: 44-51.

Walsh, K. & Koshland, D. E., Jr (1985) Characterization of ratecontrolling steps in vivo by use of an adjustable expression vector. *Proc Natl Acad Sci U S A* **82**: 3577–3581.

Weber, O. B., Baldani, V. L. D., Teixeira, K. R. S., Kirchhof, G, Baldani, J. I. and Dobereiner, J. (1999) Isolation and characterization of diazotrophs from banana and pineapple plants. *Plant and Soil*. **21**, pp 103-113.

Webley, D. M, Duff, R. B. (1965) The incidence, in soils and otherhabitats of micro-organisms producing 2-ketogluconic acid. *PlantSoil* **22**:307–313

Weyens Nele., Lelie Daniel van de.r, Safiyh Taghavi., Lee NewmanandJaco Vangronsveld (2009) Exploiting plant–microbe partnershipsto improve biomass production andremediation *Trends in Biotechnology* **27**: No.10

Wecksler, S. R, Stoll, S., Iavarone, A. T., Imsand, E. M., Tran, H., Britt, R. D, Klinman, J. P. (2010) Interaction of PqqE and PqqD in the pyrroloquinoline quinone (PQQ) biosynthetic pathway links PqqD to the radical SAM superfamily. *Chem Commun (Camb)*. **46**(37):7031-3.

Weitzman, P. D. (1966) Regulation of citrate synthase in *Escherichia coli*. *Biochim.Biophys. Acta*. **128** (1): 213-215.

Weitzman, P. D. J., and M. W. Danson.(1976) Citrate synthase *Curr.Top.Cell.Regul.***10**: 161-204.

West, S. E., Schweizer, H. P., Dall, C., Sample, A. K., 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**(1), 81-86

Whitelaw, M. A. (2000) Growth promotion of plants inoculated with phosphate-solubilizing fungi. *Adv. Agron.* **69**: 99-151

- Whitelaw, M. A., Harden, T. J. and Helyar, K. R.** (1999) Phosphate solubilisation in solution culture by the soil fungus *Penicillium radicum*. *Soil Biol. Biochem.* **31**:655-665.
- Wolfe, Alan J.** (2005) The Acetate Switch Microbiology and Molecular Biol. Rev, **69**: 112-50
- Xu, R. K., Zhu, Y.G. and Chittleborough, D.** (2004) Phosphorus release from phosphate rock and an iron phosphate by low-molecular-weight organic acids. *J. Environ. Sci.* **16**: 5- 8.
- Xue-Peng Yang, Gui-Fang Zhong, Jin-Ping Lin, Duo-Bin Mao and Dong-Zhi Wei** (2010) Pyrroloquinoline quinone biosynthesis in *Escherichia coli* through expression of the *Gluconobacter oxydans pqqABCDE* gene cluster. *J Ind Microbiol Biotechnol* **37**:575-580.
- Yang, Y.-T, Bennett, G. N and San, K.-Y** (1998) Genetic and metabolic engineering. *Electronic J. Biotechnol.* **1**(3), 134-141
- Yao-Qing Shen, Florence Bonnot, Erin M. Imsand, Jordan M. RoseFigura, Kimmen Sjölander and Judith P. Klinman** (2012) Distribution and properties of the genes encoding the biosynthesis of the bacterial cofactor, pyrroloquinoline quinone. *Biochemistry* **51**: 2265-2275.
- Yong-Hwan Kim, Chul-Hong Kim, Song Hee Han, Beom Ryong Kang, Song Mi Cho, Myung Chul Lee and Young Cheol Kim** (2006) Expression of *pqq* Genes from *Serratia marcescens* W1 in *Escherichia coli* Inhibits the Growth of Phytopathogenic Fungi
- Yum DY, Lee YP, Pan JG** (1997) Cloning and expression of a gene cluster encoding three subunits of membrane-bound gluconate dehydrogenase from *Erwinia cypripedii* ATCC 29267 in *Escherichia coli*. *J Bacteriol* **179**:6566-6572
- Zahir, A. Z, Ghani, U., Naveed, M., Nadeem, S. M., Asghar, H. N.** (2009) Comparative effectiveness of *Pseudomonas* and *Serratia* sp. containing ACC-

deaminase for improving growth and yield of wheat (*Triticum aestivum* L.) under saltstressed conditions. *Arch Microbiol* **191**:415–424

Zaidi, A., M.S. Khan and M. Amil.(2003) Interactive effect of rhizotrophic microorganisms on yield and nutrient uptake of chickpea (*Cicer arietinum* L.).*European Journal of Agronomy***19**: 15-21.

Zaidi, Khan MS, Ahemad M, Oves M, (2009) Plant growth promotion by phosphate solubilizing bacteria. *Acta Microbiologica et Immunologica Hungarica*,**56** (Suppl 3): 263-284.