

"Environmental Microbiology" Group, CIB

Final productivity in 1999

(Numbers in parenthesis near journal's name are the scientific impact, 1997)

Summary

Original publications in peer-reviewed, scientific <u>international</u> journals. Published and "in press"	12
Publication in national journals	5
Submitted papers	9
Publications in books	5
Publications in newspapers	1
Abstracts in conferences	7
Total productivity (without abstracts)	32

- Average "Impact Factor" of all published and "in press" papers: 1.48

PUBLISHED AND "IN PRESS" PUBLICATIONS

Publications in scientific international reviewed journals

1. Bashan, Y. and Gonzalez, L.E. 1999. Long-term survival of the plant- growth-promoting bacteria *Azospirillum brasilense* and *Pseudomonas fluorescens* in dry alginate inoculant. **Applied Microbiology and Biotechnology** 51: 262-266 (1.331)
2. Holguin, G., Patten, C.L., and Glick, B.R. 1999. Genetics and molecular biology of *Azospirillum*. **Biology and Fertility of Soils** 29: 10-23 (1.003)
3. Bashan, Y. 1999. Interactions of *Azospirillum* spp. in soils- a review. **Biology and Fertility of Soils** 29: 246-256 (1.003)
4. Puente, M.E., Holguin, G., Glick, B.R. and Bashan, Y. 1999. Root surface colonization of black mangrove seedlings by *Azospirillum halofraeferense* and *Azospirillum brasilense* in seawater. **FEMS Microbiology Ecology** 29: 283-292. (2.266).
5. Bashan, Y. Rojas, A. and Puente, M.E. 1999. Improved establishment and development of three cacti species inoculated with *Azospirillum brasilense* transplanted into disturbed urban desert soil. **Canadian Journal of Microbiology** 45: 441-451 (1.243)

6. Carrillo-Garcia, A., Leon de la Luz, J.L., Bashan, Y. and Bethlenfalvay, G.J. 1999. Nurse plants, mycorrhizae, and plant establishment in a disturbed area of the Sonoran desert. **Restoration Ecology 7**: (0.847)(in press).
7. Vazquez, P., Holguin, G., Puente, M.E., Lopez-Cortes, A. and Bashan, Y. 1999. Phosphate-solubilizing microorganisms from the rhizosphere of semiarid mangrove . **Biology and Fertility of Soils** (in press)(1.003)
8. Carrillo, A., Bashan, Y., Diaz-Rivera, E., and Bethlenfalvay, G.J. 1999. Effects of resource - island soils, competition, and inoculation with *Azospirillum* on survival and growth of *Pachycereus pringlei*, the giant cactus of the Sonoran Desert. **Restoration Ecology** (0.847)(in press)
9. Bashan, Y. and Vazquez, P. 1999. Mortality of five species of *Azospirillum* in natural and artificial soils: effect of calcium carbonate, sand and organic matter levels . **Biology and Fertility of Soils** (1.003)(in press)
10. Carrillo, A., Bashan, Y. and Bethlenfalvay, G.J. 1999. Resource-island soils and the survival of the giant cactus, cardon, of Baja California Sur. **Plant and Soil** (1.193) (in press)
11. Bashan, Y., Davis, E. A., Carrillo, A. and Linderman, R.G. 1999. Assessment of VA mycorrhizal inoculum potential in relation to the establishment of cactus seedlings under mesquite nurse-trees in the Sonoran desert. **Applied Soil Ecology** (in press)(1.127)
12. Bashan, Y., Gonzalez, L.E., Toledo, G., Leon de La Luz, J.L., Bethlenfalvay, G., Troyo, E., Rojas, A., Holguin, G., Puente, M.E., Lebsky, V.K., Vazquez, P., Castellanos, T. and Glazier, E. 1999. A recommendation for conservation of exceptional stands of the giant cardon cactus (*Pachycereus pringlei* [S. Wats Britt. & Ross]) in Baja California Sur, Mexico. **Natural Areas Journal**. (in press)(0.549)

PUBLICATIONS IN NATIONAL REVIEWED JOURNALS

13. Holguin, G., Bashan, Y., Mendoza-Salgado, R.A., Amador E., Toledo, G., Vazquez, P. and Amador, A. 1999. La microbiologia de los manglares, bosques en la frontera entre el mar y la tierra. **Ciencia y Desarrollo 25** (no.144): 26-35.
14. Bashan, Y. and Holguin, G. 1999. The secret of Viagra from nature. **Teva Hadvarim** No. 41 pp. 58-65.
15. Holguin, G., Alcaraz-Melendez, L. and Bashan, Y. 1999. La damiana: planta afrodisiaca del desierto mexicano, hechos y mitos. **Ciencia y Desarrollo 25** (no.147):74-77.

16. Bashan, Y., Toledo, G., Gonzalez, L.E. and Holguin, G. 1999. La caída de los gigantes: un reconocimiento del decaimiento del cardon (*Pachycereus pringlei*) en Baja California Sur. **Ciencia y Desarrollo 26**: (in press)
17. Strangmann, A., Noormann, M., Bashan, Y. and Giani, L. 1999. Methane dynamic in natural and disturbed mangrove soils (tropical salt marshes) in Baja California Sur, Mexico. **Mitteilungen der Deutschen Bodenkundlichen Gesellschaft** (in press)

PUBLICATIONS IN INTERNATIONAL BOOKS

18. Glick, B.R., and Holguin, G. 1999. The use of Plant growth-promoting rhizobacteria to improve plant productivity. In: **Biotechnology International II**. Edited by: T.H. Connor, H.U. Weier and F. Fox and , Universal Medical Press, Florida, USA. pp. 246-249.
19. Holguin, G. 1999. Nitrogen Fixation of plant growth promoting rhizobacteria. In: **Biochemical and genetic mechanisms used by plant growth promoting bacteria**. (Ed). J.M. Tan. World Scientific Publishing. River edge USA.
20. Holguin, G. 1999. Attachment of plant growth promoting rhizobacteria. In: **Biochemical and genetic mechanisms used by plant growth promoting bacteria**. (Ed). J.M. Tan. World Scientific Publishing. River edge USA.

PUBLICATIONS IN NATIONAL BOOKS

21. Gonzalez, L.E., Holguin, G., Glick, B.R., and Bashan, Y. 1999. Plant growth-promoting bacteria for agriculture and the environment. In: **Agricultural Microbiology for the 21th century**. (Ed). R. Ferrera-Cerrato and A. Alarcon. Published by Colegio de Postgraduados, Montecillo, Mexico. (in press)
22. Holguin, G., and Bashan, Y. 1999. Mangroves: microbiology and economical importance. In: **Agricultural Microbiology for the 21th century**. (Ed). R. Ferrera-Cerrato and A. alarcon. Published by Colegio de Postgraduados, Montecillo, Mexico. (in press)

SCIENTIFIC PUBLICATION IN THE INTERNET

23. Bashan, Y., and Holguin, G. 1999. Proposal for the division of Plant Growth-Promoting Rhizobacteria into two classifications: biocontrol-PGPB (Plant Growth-Promoting Bacteria) and PGPB. In: **PGPR Newsletter**. No. 19. Editor: J.W. Kloepper. At: www.ag.auburn.edu/pgpr/. 12 pages.

PUBLICATION IN A NEWSPAPER

24. Holguin, G. 1999. *Agrobacterium*, una experta en ingenieria genetica. **La Jornada** 29.3.1999.

SUBMITTED PUBLICATIONS

PUBLICATIONS IN SCIENTIFIC INTERNATIONAL REVIEWED JOURNALS

1. Castellanos, T., Ascencio, F. and Bashan, Y. 1999. Starvation-induced changes in the cell-surface of *Azospirillum lipoferum*. **FEMS Microbiology Ecology** (2.266).
2. Gonzalez, L.E., Lebsky, V.K., Hernandez, J.P., Bustillos, J.J. and Bashan, Y. 1999. The metabolism of the microalga *Chlorella vulgaris* is affected by its natural associative bacterium *Phyllobacterium myrsinacearum* when coimmobilized in alginate beads. **Canadian Journal of Microbiology** (1.243)
3. Toledo, G., Rojas, A., and Bashan, Y. 1999. Monitoring of black mangrove restoration with nursery-reared seedlings on an arid coastal lagoon. **Hydrobiologia** (0.526)
4. Lebsky, V.K., Gonzalez, L.E., and Bashan, Y. 1999. Ultrastructure of coimmobilization of the microalga *Chlorella vulgaris* with the plant growth-promoting bacterium *Azospirillum brasilense* and with its natural associative bacterium *Phyllobacterium myrsinacearum* in alginate beads. **Antonie van Leeuwenhoek International Journal of General and Molecular Microbiology** (1.81)
5. Gonzalez, L.E., and Bashan, Y. 1999. Growth promotion of the microalga *Chlorella vulgaris* when coimmobilized and cocultured in alginate beads with the plant growth-promoting bacterium *Azospirillum brasilense*. **Applied and Environmental Microbiology**. (3.336)
6. Bashan, Y., Moreno, M., and Troyo, E. 1999. Growth promotion of the oilseed halophyte *Salicornia bigelovii* in seawater inoculated with mangrove rhizosphere bacteria and *Azospirillum*. **Biology and Fertility of Soils** (1.003)
7. Bashan, Y. and Gonzalez, L.E. 1999. Root dry-weight vs. root fresh weight when evaluating the effect of plant growth-promoting bacteria on plants. **Biology and Fertility of Soils** (1.003)
8. Holguin, G. Vazquez, P., and Bashan, Y. 1999. Microbial and faunal transformations in mangrove sediment related to the productivity of the mangrove ecosystem: an overview. **Biology and Fertility of Soils** (1.003)
9. Holguin, G, and Glick B.R. 1999. Expression of the ACC deaminase gene from *Enterobacter cloacae* UW4 in *Azospirillum brasilense*. **Microbial Ecology** (1.606)

ABSTRACTS IN CONFERENCES

1. Vazquez, P., Holguin, G., and Bashan, Y. 1999. Phosphate-solubilizing and photosynthetic anaerobic bacteria from semiarid mangrove swamps. 6th Symposium on Bacterial Genetics and Ecology. June 20-24, 1999. Florence, Italy. P. 50.
2. Gonzalez, L.E., and Bashan, Y. 1999. The plant growth-promoting bacterium *Azospirillum* sp. combined with microalgae as a novel wastewater treatment. 6th Symposium on Bacterial Genetics and Ecology. June 20-24, 1999. Florence, Italy. P. 59.
3. Gonzalez, L.E., Lebsky, V.K. and Bashan, Y. 1999. Growth promotion of the fresh water microalgae *Chlorella vulgaris* when co-immobilized and co-cultured in alginate beads with plant growth-promoting bacterium *Azospirillum brasilense*. 6th Symposium on Bacterial Genetics and Ecology. June 20-24, 1999. Florence, Italy. P. 72.
4. Lebsky, V.K., Gonzalez, L.E., Carrillo, A., and Bashan, Y. 1999. Ultrastructure of coimmobilization of the microalga *Chlorella vulgaris* with the plant growth-promoting bacterium *Azospirillum brasilense* and with its natural associative bacterium *Phyllobacterium myrsinacearum* in alginate beads. 12th International Congress on Nitrogen fixation. 12-17.9.1999. Foz do Iguacu, Brazil. p. 55.
5. Tikhonovich, I.A., Borisov, A.Y., Jacobi, L.M., Kukalev, A.s., Lebsky, V.K., Morzhina, V.E., Tsyganov, V.A., and Voroshilova, V.A. 1999. Plant genes controlling development of two pea (*Pisum sativum*. L.) endosymbiotic systems. 12th International Congress on Nitrogen fixation. 12-17.9.1999. Foz do Iguacu, Brazil. # L 069.
6. Strangmann, A., Noormann, M., Bashan, Y. and Giani, L. 1999. Methane dynamic in natural and disturbed mangrove soils (tropical salt marshes) in Baja California Sur, Mexico. Annual meeting of the German soil science society, 6-14.9.1999, Hannover, Germany.
7. Gonzalez, L.E., Lebsky, V., Bashan, Y., and Hernández, J.P. 1999. Growth promotion of the microalga *Chlorella vulgaris* coimmobilized in alginate beads with *Azospirillum brasilense*. 3rd Mexican Congress of Phycology. 25-29.10. 1999. La Paz, Mexico. P. 45.

Staff and collaborations in 1999

Researchers

Dr. Yoav Bashan

Dr. Thelma Castellanos

MC Gina Holguin (a Ph.D. student in Canada since 1997)

Dr. Vladimir Lebsky (Catedra Patrimonial fellowship since 1998)

Students

IBQ Esther Puente- Ph. Student since 1999

IBQ Angel Carrillo- MC student since 1998

pBiol. Adriana Rojas Since 1998.

MC Edgar Rueda- Ph. Student since 1999

Agro. Moises Carcano - MC student since 1997

Six students of Servicio Social and Practica Profesional (from UABCS university and Tecnologico de Los Mochis university)

Technicians

Biol. Patricia Vazquez

cMC. Manuel Moreno (7 months)

Visiting Scientists

Assis. Prof. Luz Gonzalez and Lic. Juan Pablo Hernandez, Pontificia Universidad Javeriana, Bogota, Colombia (7 months). Water Bioremediation.

Dr. Antje Strangmann and Dip. Monika Normann, University of Oldenburg, Germany (2 months). Methane in mangroves.

Local Collaborations in 1999

Dr. Enrique Troyo- Programa de Agroecologia- Inoculation of *Salicornia* plants.

Dr. Jose Luis Leon de la Luz- Herbarium CIB- Conservation of cardons.

Dr. Jose Bousillos- Oceanografia- Water bioremediation.

Foreign collaborations in 1999

Dr. C.Y. Li, USDA - Forestry, Corvallis Oregon, USA.- Rock weathering by plants

Prof. B.R. Glick - University of Waterloo, Canada- Molecular biology of *Azospirillum*.

cMC Luz T. Valderamma, Pontificia Universidad Javeriana, Bogota, Colombia. Water Bioremediation.

Prof. Chen Dezhong, Dr. Liao Bowen, Forestry Research Institute, Goangzou, PRC (China). Inoculation of mangroves with beneficial bacteria.

Collaboration with the private sector

Laboratorios Agroenzymas- Tlalepantla, Estado de Mexico-New industrial project

Collaboration with the governmental sector

SEMARNAP - Conservation of cardons in Baja California Sur