

## CURRICULUM VITAE

(December 22, 2011)

## PROFESSIONAL PREPARATION

*Undergraduate institution*

Faculty of Agriculture, The Hebrew University of Jerusalem, Rehovot, Israel	Agronomy,	B.Sc. 1976
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*Graduate institution*

The Hebrew University of Jerusalem, Rehovot, Israel	Phytobacteriology,	M.Sc. 1977
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The Hebrew University of Jerusalem, Rehovot, Israel	Plant pathology,	Ph.D. 1983
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*Postdoctoral Institutions*

- The Hebrew University of Jerusalem, Rehovot, Israel	Microbial ecology,	1983
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- Department of Plant Genetics, The Weizmann Institute of Science, Rehovot, Israel	Agricultural microbiology	1984
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- Department of Agronomy, Ohio State University, Columbus, Ohio, USA	Environmental microbiology	1988-1989
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## APPOINTMENTS:

2003 – present. **Scientist-in-Residence**; The Bashan foundation, Corvallis, Oregon, USA. **Main position.**

1998 - present. **Group leader**- Environmental Microbiology and Biotechnology, Northwestern Center for Biological Research (CIBNOR), La Paz, Mexico. (At a rank equiv. to a "Senior Distinguished Professor" [Professor- Researcher levels "D" and "E"]). **Main position.**

2009 – present. **Coordinator** of the Institutional strategic research line of Environmental Microbiology. Northwestern Center for Biological Research (CIBNOR), La Paz, Mexico.

2008 – present. **Professor (University Associate, Research)**. Department of Soil, Water and Environmental Science. The University of Arizona, Tucson, Arizona, USA.

2007-2008. **Visiting Scholar** at the rank of **Full Professor**, Department of Soil, Water and Environmental Science. The University of Arizona, Tucson, Arizona, USA.

2001 – 2011. **Adjunct Professor**. Department of soil science and agriculture engineering, Faculty of agriculture and food sciences, Laval University, Quebec, Canada.

2003 – 2005. **Adjunct Professor**. Interdisciplinary Center for Marine Sciences, National Polytechnique Institute (Ministry of Public Education), Mexico City, Mexico.

1990-1997. **Head**. Department of Microbiology, The Center for Biological Research (CIB), La Paz, Mexico. (At a rank equiv. to a Full Professor [Professor- Researcher level "C"])

1985-1987. **Scientist** (At a rank equiv. to Assistant Professor), Department of Plant Genetics, The Weizmann Institute of Science, Rehovot, Israel.

## HONORARY POSITION

**2003 – President.** “The Bashan Foundation-for the advancement of science and arts”- Oregon, USA. A virtual international scientific institute supporting graduate students from developing countries, environmental studies and arts.  
([www.bashanfoundation.org](http://www.bashanfoundation.org)) Corvallis, Oregon.

## RESEARCH FIELDS

***Environmental Microbiology, restoration ecology and Biotechnology.***

(Plant-microbe interactions in aquatic and terrestrial environments, restoration, reclamation and conservation of disturbed ecosystems, water bioremediation, and soil microbiology).

## PRIZES AND AWARDS

(Minor awards are listed in the full CV)

2011- Institutional recognition of project. The project “Cellular mechanisms controlling the combined growth of microalgae and microalgae growth-promoting bacteria and their contribution to eliminate nutrients (N and P) from wastewater” was recognized by the Director General of CIBNOR as exemplary, and was selected to be presented to the evaluation committee of the federal government of Mexico as a “success case” of basic research (7.3.2011).

2010 - Invited to serve on the “Society Board of Advisors” of the Asian PGPR (plant growth promoting rhizobacteria - biofertilizers and biofungicides) Society for Sustainable Agriculture. Auburn University, Alabama, USA.

1991-2017. Selected (four times) by the National Research System (SNI) of Mexico as a "**National Researcher level III**" (highest).

2008 - National recognition. Two mangrove ecosystems were declared protected areas on 2 February 2008 by the Federal Government of Mexico under the international treaty of "Ramsar convention on Wetlands". The two ecosystems (the estuary at Balandra and the El Mogote sand bar at La Paz, B.C.S.) were restored in the previous decade by my group.

2007- Promotion to the academic rank of "**Professor-Researcher level "E"**". (Equivalent to a senior "Distinguished Professor", highest national academic level in Mexico)

2001 – 2011. Nominated (Three times) as “Adjunct Professor”. Department of Soil Science and Agriculture Engineering, Laval University, Quebec, Canada.

2003 – 2005. Nominated as “Adjunct Professor”. Interdisciplinary Center for Marine Sciences, National Polytechnique Institute (Ministry of Public Education), Mexico City, Mexico.

1998- Present. Member of the Mexican National Academy of Science.

1996- Promotion to the newly created rank of "Professor-Researcher level "D". (equivalent to a junior "Distinguished Professor")

1987,1988- Incumbent (twice) of the William T. Hogan and Winifred T. Hogan Career Development Chair. The Weizmann Institute of Science, Israel.

1983- The Hebrew University of Jerusalem special award for post-doctoral studies.

1980- Cohen prize for plant protection from the Agricultural Research Organization, Ministry of Agriculture, Israel.

1977- Graduation with honors, Masters in Science, Faculty of Agriculture, The Hebrew University of Jerusalem, Rehovot, Israel.

## SCIENTIFIC PRODUCTIVITY:

- Publications in peer-reviewed journals (with impact factor).	
Published and "in press" -	191
Submitted -	10
- Book chapters -	73
- Publications in languages other than English and popular scientific publications	59
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- Total number of scientific papers - (published, "in press" and submitted)	333

### ***Other academic contributions:***

- Theses (M.Sc.; Ph.D.)	2
- Scientific publications in the Internet	12
- Non-scientific publications in the Internet	6
- Technical reports for funding agencies	12
- Presentations in scientific conferences -	223

## SCIENTIFIC INTERNATIONAL IMPACT:

1980-2009 - **3701 citations** in international journals. (According to Dialog Information System, USA). Citations in 2004 – 2009: **1257 citations**.

- **Publication's impact of published, peer-reviewed papers:** 293.128

- **Key note and invited speaker in international and national conferences** (to October 2011): **106** (Only accepted invitations)

**Editorial board (14):** Biology and Fertility of Soils (2004-present)([Germany](#)), European Journal of Soil Biology (2001-present)([The Netherlands](#)); Annals of Microbiology (2007-2012) ([Germany](#)); International Journal of Molecular Sciences (2007-2011), Frontiers in Microbiological Chemistry ([Switzerland](#)), The Open Forest Science Journal (2008-present)([USA](#)), Journal of Biomedicine and Biotechnology (2009-present)([USA](#)), Colombian Journal of Biotechnology (2002-present), Agronomia Colombiana (2008-present) ([Colombia](#)), American Biographical Institute (2002-2007)([USA](#)), Revista Fitotecnia Mexicana (2003-2005) ([Mexico](#)); Wildflower ([Canada](#)) (2001-2004), World Applied Sciences Journal (2006-2008) ([Canada](#)); Microbial Ecology ([USA](#))(1998-2001).

**Ad-hoc reviewer** of additional **135** scientific journals and **17** funding agencies. Lifetime referee: 712 papers. Referee in the last 2 years: 100 papers.

**GRANTS:** (Not included grants and salaries assigned by the Mexican Federal Government)  
Total amount (not including classified grants): 2,977,000 U\$S.

**ADVISOR (DIRECTOR) OF GRADUATE STUDENT'S THESES-** 40  
Diploma; M.Sc.; D.Sc. and Ph.D., 31 completed until December 2011.

**Supervision of visiting researchers** and post-doctoral fellows from other countries and institutions: 22

**Supervision of research associates and research technicians:** 26.

## Personal Website

<http://www.bashanfoundation.org/gmaweb/personal/ibashan.html>

## Address for correspondence:

Email: [bashan@email.arizona.edu](mailto:bashan@email.arizona.edu)

## Peer-reviewed journal articles with impact factor (last 5 years) (impact factor in parenthesis)

1. Trejo, A., de-Bashan, L.E., Hartmann, A., Hernandez, J.-P., Rothballer, M., Schmid, M., and **Bashan Y.** 2012. Recycling waste debris of immobilized microalgae and plant growth-promoting bacteria from wastewater treatment as a resource to improve fertility of eroded desert soil. **Environmental and Experimental Botany 75**: 65-73 (2.699).
2. de-Bashan, L.E., Schmid, M., Rothballer, M., Hartmann, A., and **Bashan Y.**, 2011. Cell-cell interaction in the eukaryote-prokaryote model using the microalgae *Chlorella vulgaris* and the bacterium *Azospirillum brasilense* immobilized in polymer beads. **Journal of Phycology 47**:1350-1359 (2.239)
3. **Bashan Y.**, Trejo, A., and de-Bashan, L.E. 2011. Development of two culture media for mass cultivation of *Azospirillum* spp. and for production of inoculants to enhance plant growth. **Biology and Fertility of Soils 47**: 963-969 (2.156)
4. Lopez, B.R., **Bashan, Y.**, and Bacilio, M., 2011. Endophytic bacteria of *Mammillaria fraileana*, an endemic rock-colonizing cactus of the Southern Sonoran Desert. **Archives of Microbiology 193**: 527-541 (1.754)
5. Perez-Garcia, O., Escalante, F.M.E., de-Bashan L.E., and **Bashan, Y.** 2011. Heterotrophic cultures of microalgae: Metabolism and potential products. **Water Research 45**: 11-36 (4.355)
6. Vovides, A.G., López-Portillo, J., and **Bashan, Y.** 2011. N<sub>2</sub>-fixation along a gradient of long-term disturbance in tropical mangroves bordering the gulf of Mexico. **Biology and Fertility of Soils 47**:567–576 (1.757)
7. Vovides, A.G., **Bashan, Y.**, López-Portillo, J.A., and Guevara R. 2011. Nitrogen fixation in preserved, reforested, naturally regenerated and impaired mangroves as an indicator of functional restoration in mangroves in an arid region of Mexico. **Restoration Ecology 19**: 236–244 (1.665)
8. Perez-Garcia, O., **Bashan, Y.**, and Puente M.E. 2011. Organic carbon supplementation of sterilized municipal wastewater is essential for heterotrophic growth and removing ammonium by the microalga *Chlorella vulgaris*. **Journal of Phycology 47**: 190-199 (2.270)
9. Bacilio, M., Vazquez, P., and **Bashan, Y.** 2011. Water versus spacing: A possible growth preference among young individuals of the giant cardon cactus of the Baja California Peninsula. **Environmental and Experimental Botany 70**: 29-36 (3.164)

10. Perez-Garcia, O., de-Bashan, L.E., Hernandez, J.-P., and **Bashan, Y.** 2010. Efficiency of growth and nutrient uptake from wastewater by heterotrophic, autotrophic, and mixotrophic cultivation of *Chlorella vulgaris* immobilized with *Azospirillum brasilense*. **Journal of Phycology** 46: 800-812 (2.270)
11. de-Bashan, L.E., Hernandez, J.-P., **Bashan, Y.**, and Maier, R. M. 2010. *Bacillus pumilus* ES4: Candidate plant growth-promoting bacterium to enhance establishment of plants in mine tailings. **Environmental and Experimental Botany** 69: 343–352 (3.164)
12. **Bashan, Y.**, and de-Bashan, L.E. 2010. How the plant growth-promoting bacterium *Azospirillum* promotes plant growth – a critical assessment. **Advances in Agronomy** 108: 77-136 (3.8).
13. de-Bashan, L. E., Hernandez, J.-P., Nelson, K.N., **Bashan, Y.**, and Maier, R. M. 2010. Growth of quailbush in acidic, metalliferous desert mine tailings: effect of *Azospirillum brasilense* Sp6 on biomass production and rhizosphere community structure. **Microbial Ecology** 60: 915-927. (3.251)
14. de-Bashan, L.E., and **Bashan, Y.** 2010. Immobilized microalgae for removing pollutants: Review of practical aspects. **Bioresource Technology** 101: 1611–1627 (4.253)
15. Puente, M.E., Li, C.Y., and **Bashan, Y.** 2009. Rock-degrading endophytic bacteria in cacti. **Environmental and Experimental Botany** 66: 389-401 (3.164).
16. Puente, M.E., Li, C.Y., and **Bashan, Y.** 2009. Endophytic bacteria in cacti seeds can improve the development of cactus seedlings. **Environmental and Experimental Botany** 66: 402-408 (3.164).
17. **Bashan, Y.**, Salazar, B., Puente, M. E., Bacilio, M., and Linderman, R.G. 2009. Enhanced establishment and growth of giant cardon cactus in an eroded field in the Sonoran Desert using native legume trees as nurse plants aided by plant growth-promoting microorganisms and compost. **Biology and Fertility of Soils** 45: 585–594 (1.757).
18. **Bashan, Y.**, Salazar, B., and Puente, M.E. 2009. Responses of native legume desert trees used for reforestation in the Sonoran Desert to plant growth-promoting microorganisms in screen house. **Biology and Fertility of Soils** 45: 655–662 (1.757).
19. Lopez, B.R., **Bashan, Y.**, Bacilio, M., De la Cruz-Agüero, G. 2009. Rock-colonizing plants: abundance of the endemic cactus *Mammillaria fraileana* related to rock type in the southern Sonoran Desert. **Plant Ecology** 201: 575–588. (1.567).

20. Hartmann A., and **Bashan, Y.** 2009. Ecology and application of *Azospirillum* and other plant growth-promoting bacteria (PGPB) - special issue. **European Journal of Soil Biology** **45**: 1-2 (1.247)
21. Hernandez, J.-P., de-Bashan, L.E., Rodriguez, D.J., Rodriguez, Y., and **Bashan Y.** 2009. Growth promotion of the freshwater microalga *Chlorella vulgaris* by the nitrogen-fixing, plant growth-promoting bacterium *Bacillus pumilus* from arid zone soils. **European Journal of Soil Biology** **45**: 88-93 (1.247).
22. de-Bashan, L.E., and **Bashan Y.** 2008. Joint immobilization of plant growth-promoting bacteria and green microalgae in alginate beads as an experimental model for studying plant-bacterium interactions. **Applied and Environmental Microbiology** **74**: 6797–6802 (3.801).
23. de-Bashan, L.E., Magallon, P., Antoun, H., and **Bashan, Y.** 2008. Role of glutamate dehydrogenase and glutamine synthetase in *Chlorella vulgaris* during assimilation of ammonium when jointly immobilized with the microalgae-growth-promoting bacterium *Azospirillum brasilense*. **Journal of Phycology** **44**: 1188–1196 (2.811).
24. Leyva L.A. and **Bashan, Y.** 2008. Activity of two catabolic enzymes of the phosphogluconate pathway in mesquite roots inoculated with *Azospirillum brasilense* Cd. **Plant Physiology and Biochemistry** **46**: 898-904 (1.905).
25. de-Bashan L.E., Trejo A., Huss V.A.R., Hernandez J.-P. and **Bashan, Y.** 2008. *Chlorella sorokiniana* UTEX 2805, a heat and intense, sunlight-tolerant microalga with potential for removing ammonium from wastewater. **Bioresource Technology** **99**: 4980-4989 (4.453).
26. Strangmann, A., **Bashan, Y.** and Giani, L. 2008. Methane in pristine and impaired mangrove soils and its possible effect on establishment of mangrove seedlings. **Biology and Fertility of Soils** **44**: 511–519 (1.446).
27. de-Bashan, L.E., Antoun, H., and **Bashan Y.** 2008. Involvement of indole-3-acetic-acid produced by the growth-promoting bacterium *Azospirillum* spp. in promoting growth of *Chlorella vulgaris*. **Journal of Phycology** **44**: 938–947 (2.811).
28. **Bashan, Y.**, Khaosaad, T., Salazar, B.G., Ocampo, J. A. Wiemken, A. Oehl, F. and Vierheilig, H. 2007. Mycorrhizal characterization of the boojum tree, *Fouquieria columnaris*, an endemic ancient tree from the Baja California Peninsula, Mexico. **Trees Structure and Function** **21**: 329-335 (1.467).
29. Yabur, R., **Bashan Y.**, Hernández-Carmona G. 2007. Alginate from the macroalgae *Sargassum sinicola* as a novel source for microbial immobilization material in wastewater treatment and plant growth promotion. **Journal of Applied Phycology** **19**: 43-53. (0.778).