YOAV BASHAN

CURRICULUM VITAE
(January 1, 2016)

PROFESSIONAL PREPARATION

Undergraduate institution

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

Graduate institution

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

Postdoctoral Institutions

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

APPOINTMENTS and POSITIONS:

2014 – present. **President**. The Bashan Institute of Science (www.bashanis.org), Auburn, Alabama, 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***.

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

2013 – Present. A**ffiliated full Professor;** Department of Entomology and Plant Pathology, Auburn University, Alabama, USA.

2003 – present**. President**. "The Bashan Foundation-for the advancement of science and arts"- Oregon, USA. A virtual international scientific institute supporting free diffusion of scientific information, graduate students from developing countries and arts. (www.bashanfoundation.org) Corvallis, Oregon.

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

2008 – present. **Full Professor (Adjunct Professor)**. 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.

RESEARCH FIELDS

Environmental Microbiology, restoration ecology and Biotechnology.

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

PRIZES AND AWARDS

(Smaller awards and international recognition are listed in the full CV)

2015 – Recognition by scientific social network. Listed as the most cited researcher from Mexico in August 2015.

2015 - Recognition by the home institute. Recognized as the most published scientist of CIBNOR, La Paz, Mexico in the last 40 years.

2013 – **The Mexican National Prize in Biology of Soils "Dr. Jesús Caballero Mellado".** Awarded by the Mexican Society of Soil Science, Chapingo, Mexico, November 25, 2013.

2012 –Recognition by the state. **Recognized by the Congress of the state of Baja California Sur, Mexico** for his outstanding scientific activities and promotion of science and technology for the benefit of the citizens of the state.

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" -	210
Submitted -	16
- Book chapters -	77
- Publications in languages other than English and popular scientific publications	61
- Total number of scientific papers - (published, "in press" and submitted)	364

Other academic contributions:

- Theses (M.Sc.; Ph.D.)	2
- Scientific publications in the Internet	13
- Non-scientific publications in the Internet	12
- Technical reports for funding agencies	14
- Presentations in scientific conferences -	270

Citations: 1986 – December 31, 2015 – **14,555 citations** (According to Google Scholar, USA). Citations since 2010: **8,786 citations**.

H-index – 62 (According to Google Scholar, USA)

i-10 index – 182 (The number of scientific papers of an author that have at least 10 non-self citations, According to Google Scholar, USA)

RG index: 45.90 (December 31, 2015; According to Research Gate)

Average Impact factor of the last 10 years (2005-2015): 3.002 (According to "Journal Citation Reports®, Thomson Reuters **2014**)

- Accumulated publication's impact factor of published, peer-reviewed papers: **513.203**

- Key note and invited speaker in international and national conferences (to December 2015; only accepted invitations): **131**

Editor of scientific journals:

- 2015 – **Frontiers in Microbiology.** 'Microalgae-bacteria interactions". Special issue. (Joint position with Dr. Xavier Myali, USA).
- 2014 - Present. **Plant and Soil**.
- 2007-2015. **International Journal of Molecular Sciences.**
- 2011-2012. **Applied Soil Ecology**. "Microorganisms and the Sustainable Management of Soil", Special issue. Volume 61, October 2012 (Joint position with Prof. Joseph Kloepper and Dr. Jay Garland, USA).

- 2007-2009. **European Journal of Soil Biology**. "Ecology and application of *Azospirillum* and other plant growth promoting bacteria (PGPB)", Special Issue. Volume 45 issue 1 (2009) (Joint position with Prof. A. Hartmann, Germany).

Editorial board (**15, 7** countries): Biology and Fertility of Soils (2004-present)(Germany), European Journal of Soil Biology (2001-present)(The Netherlands); Annals of Microbiology (2007-2015) (Germany); Frontiers in Microbiological Chemistry (2012)(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 **224** scientific journals (41 countries) and **27** funding agencies (16 countries). Lifetime referee: 814 papers. Referee in the last 2 years: 88 papers.

GRANTS: (Not included grants and salaries assigned by the Mexican Federal Government)
Total amount (not including classified grants): **3,291,850 US$.**

ADVISOR (DIRECTOR) OF GRADUATE STUDENT'S THESES- 40
Diploma; M.Sc.; D.Sc. and Ph.D., 39 completed until November 2015.

- **Supervision of visiting researchers** and post-doctoral fellows from other countries and institutions: 25
- **Supervision of research associates and research technicians**: 26.

Personal Website
http://www.bashanfoundation.org/gmaweb/personal/ibashan.html

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Peer-reviewed journal articles with impact factor (impact factor in parenthesis) (last 5 years)**: 36**

1. Bashan, Y., Kloepper, J.W., de-Bashan, L.E., and Nannipieri, P. 2016. A need for disclosure of formulation and application methods when reporting tests with microbe-based products. Biology and Fertility of Soils (in Press)
2. Pereg, L., de-Bashan, L.E., and Bashan, Y. 2016. Assessment of affinity and specificity of *Azospirillum* for plants. Plant And Soil (In press)(2.952)
3. Palacios, O.A., Bashan, Y., Schmid, M., Hartmann, A., de-Bashan L. E. 2016. Enhancement of thiamine release during synthetic mutualism between Chlorella sorokiniana and Azospirillum brasilense growing under stress conditions. Journal of Applied Phycology (in press) (2.559)
4. Bashan Y., Lopez, B.R., Huss, V.A.R., Amavizca, E. and de-Bashan, L.E. 2016. *Chlorella sorokiniana* (formerly *C. vulgaris*) UTEX 2714, a non-thermotolerant microalgal species useful for biotechnological applications and as a reference strain. Journal of Applied Phycology (in press) (2.559)
5. Meza, B., de-Bashan, L.E., Hernandez, J.-P., and Bashan, Y. 2015. Accumulation of intra-cellular polyphosphate in *Chlorella vulgaris* cells is related to indole-3-acetic acid produced by *Azospirillum brasilense*. Research in Microbiology 166: 399-407 (2.826)

6. Meza, B., de-Bashan, L.E., and Bashan, Y. 2015. Involvement of indole-3-acetic acid produced by *Azospirillum brasilense* in accumulating intra-cellular ammonium in *Chlorella vulgaris*. Research in Microbiology 166: 72-83 (2.826)
7. Leyva, L.A., Bashan Y., and de-Bashan, L.E. 2015. Activity of acetyl-CoA carboxylase is not directly linked to accumulation of lipids when *Chlorella vulgaris* is co-immobilised with *Azospirillum brasilense* in alginate under autotrophic and heterotrophic conditions. Annals of Microbiology 65: 339-349 (1.039)
8. Choix, F.J., Bashan, Y., Mendoza, A., and de-Bashan, L.E. 2014. Enhanced activity of ADP glucose pyrophosphorylase and formation of starch induced by *Azospirillum brasilense* in *Chlorella vulgaris*. Journal of Biotechnology 177: 22-34 (2.884)
9. Leyva, L.A., Bashan Y., Mendoza, A., and de-Bashan, L.E. 2014. Accumulation of fatty acids in *Chlorella vulgaris* under heterotrophic conditions in relation to activity of acetyl-CoA carboxylase, temperature, and co-immobilization with *Azospirillum brasilense.* Naturwissenschaften 101:819–830 (1.971)
10. Palacios, O.A., Bashan, Y., and de-Bashan, L.E. 2014. Proven and potential involvement of vitamins in interactions of plants with plant growth-promoting bacteria—an overview. Biology and Fertility of Soils 50: 415-432 (3.396)
11. Bashan, Y., de-Bashan, L.E., Prabhu, S.R., and Hernandez, J.-P. 2014. Advances in plant growth-promoting bacterial inoculant technology- formulations and practical perspectives (1998-2013). (a Marschner Review). **Plant and Soil 378**: 1-33 (3.713).
12. Lopez, B.R., **Bashan, Y.,** Trejo, A., and de-Bashan, L.E. 2013. Amendment of degraded desert soil with wastewater debris containing immobilized *Chlorella sorokiniana* and *Azospirillum brasilense* significantly modifies soil bacterial community structure, diversity, and richness. **Biology and Fertility of Soils 49**: 1053-1063 (3.396)
13. **Bashan, Y**., Kamnev, A.A., and de-Bashan, L.E. 2013. Tricalcium phosphate is inappropriate as a universal selection factor for isolating and testing phosphate-solubilizing bacteria that enhance plant growth: a proposal for an alternative procedure. **Biology and Fertility of Soils 49**: 465-479 (3.396)
14. Cruz, I., **Bashan, Y.,** Hernàndez-Carmona, G., and de-Bashan, L.E. 2013. Biological deterioration of alginate beads containing immobilized microalgae and bacteria during tertiary wastewater treatment. **Applied Microbiology and Biotechnology 97**: 9847-9858 (3.811)
15. **Bashan, Y**., Moreno, M. Salazar, B. and Alvarez, L. 2013. Restoration and recovery of hurricane-damaged mangroves using the waterfall-retreat effect and tides as a dredging tools. **Journal of Environmental management 116**: 196-203 (3.188)
16. **Bashan, Y**., Kamnev, A.A., and de-Bashan, L.E. 2013. A proposal for isolating and testing phosphate-solubilizing bacteria that enhance plant growth. **Biology and Fertility of Soils 49**: 1-2 (3.396) (Policy letter to the Editor)
17. Choix, F.J., de-Bashan, L.E., and **Bashan, Y**. 2012. Enhanced accumulation of starch and total carbohydrates in alginate-immobilized *Chlorella* spp. induced by *Azospirillum brasilense.* I. Autotrophic conditions. **Enzyme and Microbial Technology 51**: 294-299 (2.966)
18. Choix, F.J**.,** de-Bashan, L.E., and **Bashan, Y**. 2012. Enhanced accumulation of starch and total carbohydrates in alginate-immobilized *Chlorella* spp. induced by *Azospirillum brasilense.* II. Heterotrophic conditions. **Enzyme and Microbial Technology 51**: 300-309 (2.966)
19. **Bashan, Y.,** Salazar, B.G, Moreno, M., Lopez, B.R., and Linderman, R.G. 2012. Restoration of eroded soil in the Sonoran Desert with native leguminous trees using plant growth-promoting microorganisms and limited amounts of compost and water. **Journal of Environmental Management 102**: 26-36. (3.188)
20. Lopez, B.R., Tinoco-Ojanguren, C., Bacilio, M., Mendoza, A., and **Bashan, Y**. 2012. Endophytic bacteria of the rock-dwelling cactus *Mammillaria fraileana* affect plant growth and mobilization of elements from rocks. **Environmental and Experimental Botany 81**: 26-36 (3.003)
21. Covarrubias, S.A., de-Bashan, L.E., Moreno, M., and **Bashan, Y.** 2012. Alginate beads provide a beneficial physical barrier against native microorganisms in wastewater treated with immobilized bacteria and microalgae. **Applied Microbiology and Biotechnology 93**: 2669-2680 **(**3.811**)**

22. 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 (3.003).
23. de-Bashan, L.E., Hernandez, J.-P., and **Bashan, Y.** 2012. The potential contribution of plant growth-promoting bacteria to reduce environmental degradation - A comprehensive evaluation. **Applied Soil Ecology 61**: 171-189 (2.206)
24. 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 (2.529)
25. **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 (3.396)
26. 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 **(**1.861**)**
27. 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 **(**5.323**)**
28. Vovides, A.G., López-Portillo, J., and **Bashan, Y**. 2011. N_2-fixation along a gradient of long-term disturbance in tropical mangroves bordering the gulf of Mexico. **Biology and Fertility of Soils** 47:567–576 (3.396)
29. 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 (1.991)
30. 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 (2.829)
31. 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 **(**3.003**)**
32. 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 (2.529)
33. 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 (3.003)
34. **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 (5.021).
35. 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. (3.118)
36. de-Bashan, L.E., and **Bashan, Y**. 2010. Immobilized microalgae for removing pollutants: Review of practical aspects. **Bioresource Technology 101:** 1611–1627 (5.039)