The Bashan Institute of Science
Final 2015

(***Numbers in parenthesis adjacent a journal's name are the impact factor, 2014***)

SUMMARY

- Original publications in peer-reviewed journals with Impact factor
- Published and "in press" - 5
- Submitted papers - 8
- Publications of chapters in books - 2
- Invited presentations at conferences/seminars 12
- Submitted new projects 5
- Review of manuscripts for international and national journals and funding agencies 70

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- Total productivity (without conferences, reviews, and reports) for 2015: 15

- **Average "Impact Factor" of all published papers in 2015: 2.834**

Published and "in press" publications in peer-reviewed journals having an impact factor: 5

1. 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 (2.705)

2. Bashan Y., Lopez, B.R., Huss, V.A.R., Amavizca, E. and de-Bashan, L.E. 2015. *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) DOI: 10.1007/s10811-015-0571-z (2.559)

3. Palacios, O.A., Bashan, Y., Schmid, M., Hartmann, A., de-Bashan L. E. 2015. Enhancement of thiamine release during synthetic mutualism between *Chlorella sorokiniana* and *Azospirillum brasilense* growing under stress conditions **Journal of Applied Phycology** (in press) DOI 10.1007/s10811-015-0697-z (2.559)

4. Pereg, L., de-Bashan, L.E., and Bashan, Y. 2015. Assessment of affinity and specificity of *Azospirillum* for plants. **Plant And Soil,** doi: 10.1007/s11104-015-2778-9 (in press)(2.952)

5. Bashan, Y., Kloepper, J.W., de-Bashan, L.E., and Nannipieri, P. 2015. A need for disclosure of the identity of microorganisms, constituents, and application methods when reporting tests with microbe-based or pesticide-based products. **Biology and Fertility of Soils** (accepted)(3.396)

Chapters in books: 2

6. Perez-Garcia, O., and Bashan, Y. 2015. Microalgal heterotrophic and mixotrophic culturing for bio-refining: From metabolic routes to techno-economics. In: **Algal Biorefineries. Vol. 2: Products and Refinery Design**. Prokop, A., Bajpai, R., Zappi, M. (Eds). Springer International Publishing Switzerland, pp. 61-131.

7. Bashan, Y., de-Bashan, L.E. and Prabhu, S.R. 2015. Superior polymeric formulations and emerging innovative products of bacterial inoculants for sustainable agriculture and the environment. In: **Agriculturally Important Microorganisms: Commercialization and Regulatory Requirements in Asia**. (eds.): Singh H. B., Sarma B. K. and Keswani C. Published by: Springer, Singapore (accepted)

Submitted publications: 8

Scientific international reviewed journals

1. Palacios, O.A., Choix, F.J., Bashan, Y., de-Bashan, L.E. 2015. Indole-3-acetic acid produced by *Azospirillum* spp. affects activity of the main enzymes of starch metabolism in *Chlorella vulgaris* under heterotrophic conditions. **Research in Microbiology** (2.705)

2. Amavizca, E., Bashan, Y., Ryu, C.-M., Farag, M.A., Bebout, B.M., and de-Bashan, L.E. 2015. Remote effects of the plant growth-promoting bacteria *Azospirillum brasilense* and *Bacillus pumilus* on the microalgae *Chlorella sorokiniana.* **Journal of Applied Phycology** (2.559)

3. Lopez-Lozano, N.E., Carcaño-Montiel, M.G., and Bashan, Y. 2015. Using native trees and cacti to improve soil potential nitrogen fixation during long-term restoration of arid lands. **Plant And Soil** (2.952)

4. de-Bashan L.E., Mayali, X., Bebout, B.M., Weber, P.K., Detweiler, A., Hernandez, J.- P., Prufert-Bebout, L., and Bashan, Y. 2015. Establishment of stable synthetic mutualism without co-evolution between microalgae and bacteria demonstrated by mutual transfer of metabolites (NanoSIMS isotopic imaging) and persistent physical association (Fluorescent in situ hybridization). **Algal Research** (5.014)

5. Palacios, O.A., Gomez-Anduro, G., Bashan, Y., de-Bashan, L.E. 2015. Exudates produced by *Chlorella sorokiniana* induce Indole-3-acetic acid production by *Azospirillum brasilense* during in synthetic mutualism. **Algal Research** (5.014)

6. Vital-López, L., Cruz-Hernández , M.A., Ortiz-Pérez, E.L., de-Bashan, L.E., Segoviano-Ramírez, J.C., Mendoza-Herrera, A. 2015. Conventional and genetically modified maize: rhizobacterial communities and spatial distribution of *Azospirillum brasilense* in their rhizosphere. **Biology and Fertility of Soils** (3.396)

7. Herrera, H., Valadares, R., Contreras, D., Bashan, Y., and Arriagada, C. 2015. Root-endophytic fungi of orchids in the coastal and Andean mountains in central-southern Chile. **Mycorrhiza** (3.459)

Scientific industrial newsletter

8. Bashan, Y., and de-Bashan, L.E. 2015. Present and future in encapsulated formulations for microorganisms in agriculture and the environment. **Bioencapsulation Innovations** (Under review).

Presentations at conferences: 12 (the invitee and the presenter = in bold)

1. **de-Bashan, L.E., and Bashan, Y**. 2015. Encapsulation in polymers of microalgae growth-promoting bacteria; a useful technology for wastewater treatment and also as a delivery system for probiotics and vaccines. Seminar of the School of Fisheries, Aquaculture & Aquatic Sciences. March 6, 2015, Auburn University, Alabama, USA (**Shared invited lecture**)

2. **de-Bashan, L.E.,** and Bashan, Y. 2015. Uso y aplicaciones de algas inmobilizadas en el tratamiento de aguas contaminadas. Seminar of the Center of Biotechnology, April 1. 2015, University of Concepcion, Chile. **(Invited lecture**)

3. **Bashan, Y**., and de-Bashan, L.E. 2015. Advanced inoculants for plant growth-promoting bacteria aimed for the 21st century Colombian agriculture. Nation-wide seminar of the Colombian Research Institute for Agriculture (CORPOICA), April 16, 2015. Bogota, Colombia **(Key-note lecture).**

4. **Bashan Y.** and de-Bashan L.E. 2015. Inoculant formulations for plant growth-promoting bacteria. 4th Asian PGPR conference. May 3-6, 2015. Hanoi, Vietnam. **(Invited lecture**).

5. **de-Bashan L.E.,** Amavizca, E., Hernandez, J. P., Lopez, B. R., Palacios, O. and Bashan, Y. 2015. Interaction of Plant Growth-Promoting Bacteria and microalgae: from basic studies of plant–bacteria interaction to potential biotechnological applications. 4th Asian PGPR conference. May 3-6, 2015. Hanoi, Vietnam. **(Invited lecture+ chairman of a session**).

6. **Bashan, Y**. and de-Bashan, L.E. 2015. Bacterial inoculants: present and future. In: Seminar at Symbiota Inc., September 16, 2015, Boston, Massachusetts, USA. **(Invited lecture**).

7. **de-Bashan, L.E.** and **Bashan, Y.** 2015. Plant growth-promoting bacteria for environmental sciences. In: Departmental seminar. Department of entomology and plant pathology, Auburn University, October 5, 2015, Auburn, Alabama, USA **(Shared invited lecture).**

8. **Bashan, Y.** 2015. Who is an author or co-author of a scientific paper? In: Special seminar, Joined groups of molecular environmental microbiology and biocontrol of pathogens, Auburn University, October 27, 2015, Auburn, Alabama, USA **(Invited lecture**).

9. **de-Bashan, L.E**. 2015. Search for endophytes in wild plants. In: Special seminar, Joined groups of molecular environmental microbiology and biocontrol of pathogens, Auburn University, November 17, 2015, Auburn, Alabama, USA (**Invited lecture**).

10. **Bashan, Y.,** and de-Bashan, L.E. 2015. Inoculant formulations are essential for successful inoculation with plant growth-promoting bacteria. In: miCROPe 2015 – Microbe-assisted crop production: opportunities, challenges and needs, 23–25. 11. 2015, Vienna, Austria. **(Key-note lecture and Chairman of the session**).

11. **de-Bashan, L.E**. and Bashan, Y. 2015. Creation of synthetic mutualism between microalgae and bacteria to understand plant-bacteria interaction. In: Institutional seminar of the Institute of Environmental Biotechnology at Graz University of Technology, 29.11-4.12.2015. Graz, Austria **(Invited lecture**).

12. **Bashan, Y.,** and de-Bashan, L.E. 2015. Restoration of eroded desert lands with plant growth-promoting bacteria. In: Institutional seminar of the Institute of Environmental Biotechnology at Graz University of Technology, 29.11-4.12.2015. Graz, Austria **(Invited lecture**).

Scientific recognition and international services

1. **Asian PGPR Society of Sustainable Agriculture.** Founder and Secretary (Dr. Luz de-Bashan)**.**

2. **Recognition by scientific social network**. Listed as the most cited researcher from Mexico in August 2015. (According to Research Gate, September 2, 2015; Prof. Yoav Bashan).

3. **Recognition by the home institute**. Recognized as the most published scientist of CIBNOR, La Paz, Mexico in its last 40 years. (October 30, 2015; Prof. Yoav Bashan).

4. **Review of manuscripts** for journals, funding agencies and foreign universities: **Total: 70**

Reviewer	Journal, University or Funding Agency	Country	Number of manuscripts
Yoav Bashan	Water Research	The Netherlands	3
	Antonie van Leevwenhoek J. Microbiology	The Netherlands	1
	Applied Energy	The Netherlands	2
	Applied Soil Ecology	The Netherlands	1
	Scientia Horticulturae	The Netherlands	2
	European Journal of Wood and Wood Products	The Netherlands	1
	Plant and Soil	Germany	15
	Biology and Fertility of Soils	Germany	8
	Acta Physiologiae Plantarum	Germany	2
	AMB Express	Germany	1
	Environmental Technology	UK	2
	International Journal of Phytoremediation	UK	2
	PlosOne	USA	1
	Desalinization and Water Treatment	USA	1

	Brazilian Journal of Microbiology	Brazil	1
	Indian Journal of Phytopathology	India	1
	Journal of Zhejiang University	P.R. China	1
	Chinese Academy of Forestry	P.R. China	1
Luz de-Bashan	Biology and Fertility of Soils	Germany	3
	Journal of Applied Phycology	Germany	3
	Plant and Soil	Germany	8
	Chemical and Biological Technologies in Agriculture	Germany	1
	Botany	Canada	1
	Algal Research	The Netherlands	3
	Bioresource Technology	The Netherlands	1
	European Journal of Soil Biology	The Netherlands	2
	Current Biotechnology	USA	1
	Arabian Journal of Chemistry	Saudi-Arabia	1
	Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales	Colombia	1
	CONACYT-Basic science	Mexico	1

Submitted projects: 5

"Endophytic bacteria of the woolly moss (*Racomitrium lanuginosum*): biogeography, ecology and geomicrobiology".
Funding agency: Icelandic Research Fund (IRF) 2015
PI: Dr. Oddur Vilhelmsson, University of Akureyri, Iceland
Co-PI: Prof. Yoav Bashan, Dr. Luz E. de-Bashan

"Inoculante microbiano basado en un complejo alga-bacteria para mejorar la calidad de suelos degradados"
Funding agency: CONICYT – Chile, Proyectos Internacionales de Investigacion
PI: Dr. Cristian Agurto – Universidad de Concepcion, Chile
Co-PI: Prof. Yoav Bashan, Dr. Luz E. de-Bashan

"Desarrollo de una formulación inmovilizada a partir de hidrogeles y consorcio alga-bacteria para recuperar suelos degradados y aumentar la retención de agua en áreas agrícolas de baja productividad"
Funding agency: Fundación para la Innovación Agraria, Ministerio de Agricultura, Chile.
PI: Dr. Mauricio Schoebitz, Universidad de Concepcion, Chile
Co-PI: Prof. Yoav Bashan, Dr. Luz E. de-Bashan

"Establishment and function of synthetic mutualism in a microalgae-bacteria association"
Funding agency: National Science Foundation (NSF), USA
PI: Dr. Luz de-Bashan
Co-PI: Prof. Yoav Bashan, Dr. David Blersch Auburn University
Participante: Dr. Blanca Lopez

Personnel in 2015

(H-index and citations according to Google Scholar, January 5, 2016)

Scientists-in-residence

1. Dr. Luz Gonzalez de-Bashan (H-index-31; Citations- 5,002; life-time, average Impact factor$_{52\ publication}$- 3.084)
2. Prof. Yoav Bashan (H-index-61; Citations- 14,658; last 10 years, average Impact factor$_{60\ publication}$- 3.002)

Associate scientists

3. Dr. Blanca Lopez (H-index-6; Citations- 126)
4. M.Sc. Juan-Pablo Hernandez (H-index-17; Citations- 1,310)
5. Dr. Alfonso Medel **(also:** Webmaster-in-Chief**)**

Business officer

MBA, Eng. Noga Bashan

International and national collaborations in 2015

(in: projects and publications in chronological order of cooperation**)**

1. **Prof. Hani Antoun**. Laval University, Quebec (**Canada**). Water Bioremediation. (not active in 2015)
2. **Dr. S.R. Prabhu**, TerraBioGen Technologies. Vancouver (**Canada**). Diazotrophic bacteria.
3. **Prof. Anton Hartmann and Dr. Michael Schmid**. German Research Center for Environmental Health, München, (**Germany**). FISH and plant-bacteria interactions.
4. **Prof. Martin Heil**, CINVESTAV (Guanajuato, **Mexico**). Mutualism between microalgae and bacteria.
5. **Dr. Alberto Mendoza**- CBG-IPN, Reynosa, Tamaulipas (**Mexico**). Colonization of *Azospirillum*.
6. **Prof. Joseph Kloepper, M.Sc. John McInroy and Dr. Ping Huang**, Auburn University, Auburn (**USA**). PGPB/PGPR.
7. **Prof. Gabriela Olmedo**, CINVESTAV (Guanajuato, **Mexico**). Mutualism between microalgae and bacteria.
8. **Dr. Fabricio Cassan.** University of Rio Cuarto, (**Argentina**). Attachment process in plant growth-promoting bacteria.
9. **Dr. Gracia Gomez** – CIBNOR (**Mexico**). Genetic manipulation of microalgae.
10. **Prof. Ann Hirsh**, University of California-Los Angeles (**USA**). Microorganisms of the desert.
11. **Dr. Choong-Min Ryu.** Korean Institute of Bioscience and Biotechnology, Daejeon, (**Korea**). Volatiles in *Azospirillum*.
12. **Prof. Rainer Borriss**. Humboldt University (**Germany**). Molecular biology of desert bacilli. (not active in 2015)
13. **Dr. Cesar Arriagada**. University of la Frontera (**Chile**). Endophytic microfungi.
14. **Dr. Lily Pereg.** University of New England, (**Australia**). Specificity and affinity of *Azospirillum* for plants.
15. **Dr. Valeska Villegas Escobar**. Universidad EAFIT, Medellín (**Colombia**). Detection of *Bacillus subtilis* by FISH.
16. **Dr**. **Brad Bebout**. NASA-Ames, California (**USA**). Interactions among microalgae and bacteria.

17. **Dr**. **Xavier Myali**. Lawrence Livermore National Laboratory, California (**USA**). Study of microalgae-bacteria interaction using nanoSIMS.
18. **Dr**. **Peter Weber.** Lawrence Livermore National Laboratory, California (**USA**). Study of microalgae-bacteria interaction using nanoSIMS.
19. **Dr. Octavio Perez-Garcia**. University of Auckland, (**New Zealand**). Heterotrophic and Mixotrophic growth of microalgae; mtabolic modeling
20. **Dr**. **Volker Huss**.University of Erlangen-Nürnberg (**Germany**). Systematics of *Chlorella*.
21. **Dr**. **Cristian Agurto**. University of Concepcion. (**Chile**). Biotechnology of microalgae.
22. **Eng. Jorge Farias.** (**Chile**) University of Concepcion. Biotechnology of microalgae.
23. **Prof. Roberto Riquelme** (**Chile**) University of Concepcion. Modeling of microalgae growth.
24. **Dr. Mauricio Schoebitz** (**Chile**) University of Concepcion. Restoration of forests.
25. **Dr. Ruth Bonilla**, CORPOICA (**Colombia**). Improvement of bacterial inoculants.
26. **Dr. Oddur Vilhelmsson (Iceland)** University of Akurery. Endophyes from extreme environments.
27. **Dr. David Blerch (USA)** Auburn University. Mutualism microalgae-bacteria
28. **Prof. Gabriele Berg, (Austria).** Technical University of Graz. Endophytic bacteria.(new)
29. **Dr. Henri Müller** , (**Austria**). Technical University of Graz. Formulations for inoculants. (new)
30. **Dr. Armin Erlacher, (Austria).** Technical University of Graz. FISH and 3D modeling.(new)