

CURRICULUM VITAE

Dr. Isam Sabbah

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EDUCATION

D.Sc. 1997, Environmental Engineering, Faculty of Civil and Environmental Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

M.Sc. 1992, Environmental Engineering, Faculty of Civil and Environmental Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

B.Sc. 1989, Chemical Engineering, Faculty of Chemical Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

RESEARCH INTERESTS

- Fate of nanoparticles in the environment
- Advanced oxidation processes for water treatment
- In-situ remediation and bioremediation

ACADEMIC APPOINTMENTS

2007-present,	Senior Lecturer, Prof. Ephraim Katzir Department of Technology, ORT Braude College, Karmiel, Israel
2006-2007	Adjunct Lecturer , Department of Biotechnology, ORT Braude College, Karmiel,
2005-2006	Adjunct Senior Lecturer, Mar Elias Campus at the Galilee, Indianapolis University. Department of Environmental Chemistry
2002	Visiting Lecturer , Johns Hopkins University, Baltimore, MD, USA.
2000-2001	Adjunct Lecturer, Faculty of Civil and Environmental Engineering,, Technion-Israel Institute of Technology, Haifa, Israel.
1993-1996	Teaching Assistant, Faculty of Civil and Environmental Engineering,, Technion-Israel Institute of Technology, Haifa, Israel,

PROFESSIONAL EXPERIENCE

2009 Founder of AgRobotics Lt.d. (Start-up Company).

2005-2007	Scientific Director, Research and Development Center, the Galilee Society
2003-2004	Senior Researcher, Research and Development Center, the Galilee Society
1991-1993, 2004-	Environmental Consultant for different municipalities, agencies and private sector
2001-2003	Postdoctoral Associate, Geography and Environmental Engineering, Johns Hopkins University, Baltimore, MD, Bioavailability of organic contaminants in soil-water systems.
1998–2001	Project Manager and researcher, the R&D center, the Galilee Society, Shefa-Amr, Israel. Director of a 4-year regional cooperation project funded by a \$2 million grant from USAID. Director of Services Laboratory for water and wastewater sampling and analysis following the Israeli Ministry of Health regulations (accredited laboratory; ISO9000).
1997-1998	Research Fellow, Department of Biological Sciences, Imperial College at Wye, University of London, UK (six months). The research was focused on studying the role of organic matter in the sorption of organic chemicals to soils.
1994 – 1997	Researcher, Regional Research & Development Center, The Galilee Society, Eilaboun, Israel.
1991 - 1992	Design Engineer, Goldshmidt Environmental Engineering and Design, Tel-Aviv, Israel.
1989 - 1990	Environmental Engineer, Shefa-Amr Municipality, Shefa-Amr, Israel.

TEACHING EXPERIENCE

ORT Braude College of Engineering:

Graduate Courses:

Biotechnology and Environment

Undergraduate Courses:

Mass transfer

Aquatic Chemistry-Fundamentals and Processes

Bioseparation Engineering

Introduction to Heat Transfer

ACADEMIC AND PROFESSIONAL AWARDS AND GRANTS

- 2010 The Greenspan Award for the best master thesis for Kaite Baransi- sponsored by the Faculty of Civil and Environment Engineering, Technion-Israel Institute of Technology, Haifa, Israel
- 2009 Excellent Researcher - ORT Braude College
- 2009 Excellent faculty member for the entire activity - ORT Braude College
- 2008 The Greenspan Award for the best master thesis for Nedal Massalha- sponsored by the Faculty of Civil and Environment Engineering, Technion-Israel Institute of Technology, Haifa, Israel
- 2008 The Maoff Fellowship- Sponsored by the Higher Education Council.
- 1997 The Lord Goodman Scholarship, sponsored by the British Council in Israel.
- 1995 The Miriam and Aaron Gutwirth Award, for academic excellence sponsored by the Technion-Israel Institute of Technology, Haifa, Israel.

PROFESSIONAL ACTIVITIES

ORT Braude College:

2010 – present Member, academic committee

Conferences:

- Member if the Management Committee of the COST action Water-2020
- Member of the Scientific Committee of the International conference “XENOWAC 2009” to be held on 11-13 March, 2009 in Cyprus. www.xenowac2009.com
- Member of the Management Committee of the COST Action 636 “Xenobiotics in the Urban Water Cycle” Coordination Action within the framework of the FP6 of the EU: 2005-2009. <http://cost636xenobiotics.er.dtu.dk/>
- Member of Organizing Committee of the “First Regional Scientific Conference on Traditional Arabic and Islamic Medicine” Amman. August 8-10, 2007.

LIST OF PUBLICATIONS

Refereed Papers

1. Sabbah I., Baransi K., Massalha N., Dawas-Massalha A., Saadi I., and Njidad A., Efficient nitrogen removal from wastewater by tuff-based intermittent biofilter. Submitted to *J. Ecol. Eng.* (2012)
2. Baransi K., Dubowski Y. and Sabbah I., Synergetic effect of photocatalytic degradation and adsorption processes on the removal of phenolic compounds from agro-industrial effluent. *Water Research*, 46, 3, 789-798 (2012)-(IF=4.87)
3. Massalha N., Shaviv A. and Sabbah I.; Modeling the Effect of Immobilization of Microorganisms on the Rate of Biodegradation of Phenol Under Inhibitory Conditions, *Water Research*, 44, 5252-5259 (2010). (IF=4.87)
4. Khatib A., Aqra F., Yagi N., Basheer S., Sabbah I., Al-Hayek B., and Musa M. Environmental pollution resulting from olive oil production in Palestine, *South. Braz. J. Chem.*, Vol. 17, 17 (2009).

5. Krasnits E., Friedler E., Sabbah I., Beliavski M., Tarre S., and Green M. Spatial distribution of microbial population in a well established constructed wetland treating municipal wastewater, *J. Ecological Eng.*, 35, 1085-1089 (2009). (IF=2.745)
6. Khatib A., Aqra F., Yagi N., Subuh Y., Hayeek B., Musa M., Basheer S. and Sabbah I. Reducing the environmental impact of olive mill wastewater. *Amer. J. Environ. Sci.*, 5, 1, 1- 6 (2009).
7. Massalha N., Basheer S. and Sabbah I. Effect of adsorption and bead size of immobilized biomass on the rate of biodegradation of phenol at high concentration levels. *Ind. Eng. Chem. Res.*, 46, 6820-6824 (2007). (IF=1.75)
8. Green M., Shaul N., Beliavski M., Sabbah I., Ghattas B. and Tarre S. Minimizing land requirements and evaporation in extensive wastewater treatment systems. *Ecological Eng. J.*, 26, 266-271(2006). (IF=2.745)
9. Admon S., Tarre S., Sabbah I., Lahav O., Beliavski M. and Green M. Treatment of pre-settled municipal wastewater using a passively aerated vertical bed. *Env. Eng. Sci.*, 22, 6, 707-715 (2005). (IF=1.111)
10. Nguyen T.H., Sabbah I. and Ball W.P. Immobilization of Soot Particles in a Silica Matrix: A Sorbent-Carrier System for Studying Organic Chemical Sorption. *Environ. Sci. and Technol.*, 39, 6527-6534 (2005). (IF=4.63)
11. Sabbah I., Yazbak A., Haj J., Saliba A. and Basheer S. Biomass selection for optimal anaerobic treatment of olive mill wastewater. *Environmental Technology*, 26, 47-54 (2005). (IF=0.762)
12. Sabbah I., Ball W.P., Young D. and Bouwer E.J. Misinterpretations in the Modeling of Contaminant Desorption From Environmental Solids when Equilibrium Conditions Are Not Fully Understood, *Environ. Eng. Sci.*, 22, 3, 350-366 (2005). (IF=1.111)
13. Nguyen T., Sabbah I. and Ball W.P. Response to comment on "Sorption nonlinearity for organic contaminants with diesel soot: method development and isotherm interpretation". *Environ. Sci. and Technol.* 38, 20, 5486-5487 (2004). (IF=4.63)
14. Sabbah I., Rebhun M. and Gerstl Z. An independent prediction of the effect of DOM on the transport of polycyclic aromatic hydrocarbons. *J. Contaminant Hydrol.*, 75 (1-2), 55-70. (2004). (IF=2.1)
15. Nguyen T., Sabbah I., and Ball W.P. Sorption nonlinearity for organic contaminants with diesel soot: method development and isotherm interpretation. *Environ. Sci. and Technol.* 38, 13, 3595-3603 (2004). (IF=4.63)
16. Sabbah I., Marzook T. and Basheer S. The effect of pretreatment on anaerobic activity of olive mill wastewater using batch and continuous systems. *Process Biochemistry*, 39 (12), 1947-1951 (2004). (IF=2.444)
17. Sabbah I. Ghattas B., Hayeek A., Omari J., Haj Y., Admon S. and Green M. Intermittent Sand Filtration for wastewater treatment in rural areas of the Middle-East- A pilot Study. *Wat. Sci. and Technol.* 48 (11) 147-152 (2003). (IF=1.094)
18. Sabbah I. and Rebhun M. Adsorption-desorption of TCP in soil-water systems related to groundwater contamination and remediation. *Water Environment Research*, 69 (5) 1032-1038 (1997). (IF=0.965)

Books

Sabbah I., and Rayan A., *Wastewater treatment in The Arab villages. Jerusalem Institute for Israel Studies, 2007 (Book in Hebrew)*
<http://www.jiis.org.il/imageBank/File/publications/isam-eng.pdf>.

Book Chapters

1. Borisover M., Sas A., Sabbah I., and Lavie G., (2009). Characterization of effluent DOM using fluorescence spectroscopy. *Water and Irrigation: 506:26-32. (Hebrew)*
2. Sabbah I., Ghattas B., Hayeek A., Massalha N., Rabi A., El-Araby A., Wasef E., Mehawed H., Smadar A., Lahav O., Tarre S., Shaul N., Beliafski M., and Green M. (2006). *Appropriate Technologies for Wastewater Treatment and Reuse in the Rural Areas of the Middle East- Case Study of Successful Regional Cooperation*. In H. Shuval, and H. Dwiek, *Water for Life in the Middle East*. Jerusalem: IPCRI Publishers. Vol 2, 756-767, 2006.
3. Basheer S., Sabbah I., Yazbak A., Haj J., Saleeba A., Hayeek B., Musa M., Khateeb A., Suboh Y., and Galil N., (2006). *Reducing the environmental impact of olive mill wastewater in the Middle East region*. In H. Shuval, and H. Dwiek, *Water for Life in the Middle East*. Jerusalem: IPCRI Publishers. Vol 2, 590-602, 2006.
4. Rebhun M., Rav-Acha Ch., Sabbah I., Rwetabula J. and DeSmedt F. (1998) "*Sorption-desorption and complexation processes of the adsorbed and aqueous fraction of NAPL-importance for complete clean-up of aquifers.*" In H. Rubin, N. Narkis and J.B. Carberry, *Soil and Aquifer Pollution - Non Aqueous Phase Liquids - Contamination and Reclamation*. Berlin: Springer-Verlag Publishers.

Conference Proceedings and Abstracts

1. Nedal Massalha , Haim Shaindruf, and Isam Sabbah. Anaerobic treatment suitability for pomegranate wastewater and biomethane potential. International Association of Mediterranean Agro-Industrial Waste. International Workshop, June, 5-8, 2012, Santarem, Portugal.
2. Isam Sabbah, Katie Baransi, Anwar Dawas , Nedal Masalha, Ibrahim Sadi and Ali Nejidat. Nitrification through wastewater treatment in intermittent biofilter system. IWA Regional Conference on Wastewater Purification and reuse (WWPR), March 28-30, 2012, Heraklion, Crete, Greece.
3. Isam Sabbah, Nedal Massalha, and Ahlam Saliba, Immobilized anaerobic bacteria for improving wastewater treatment systems, WCEB Conference, BIT's 1st World Congress of Environmental Biotechnology, Dalian, China, October 10-22, 2011.
4. Isam Sabbah, Katie Baransi, Nedal Masalha, Ibrahim Sadi and Ali Nujedat, Nitrification through wastewater treatment in intermittent biofilter system. ISEI, Conference, Technion, Haifa, September, 11-14, 2011, Haifa, Israel
5. Baransi K., Dubowski Y., and Sabbah I., Effect of photocatalytic degradation and adsorption processes on the removal of phenolic compounds from agro-industrial effluent. 240th National Meeting of ACS , August 22, 2010, Boston, USA
6. Sabbah I., Massalha N. and Friedler E., Evaluation of the hydraulic regime of matured CWL and assessing the effect of hydraulic manipulation on the RTD, 12th IWA International Conference on Wetland Systems, ICWS2010, October 4-9, 2010, Venice, Italy.

7. Massalha N., Jeries M., Baransi K., Dawas A., and Sabbah I., The effect of primary treatment on the performance of intermittent biofilter treating wastewater in rural areas. 38th Israeli Ecology Conference, June 22, 2010, BGU, Israel.
8. Baransi K. Dubowski Y. and Sabbah I. The effect of photocatalytic degradation and adsorption processes on the removal of phenolic compounds from agro-industrial effluent. 38th conference of the Israeli Association of Ecology, June 22, 2010, BGU, Israel.
9. Sabbah I., Massalha N., Saliba A., and Hussien M., Immobilized anaerobic biomass for improving wastewater treatment systems, June 17, 2010 IAMWA, Izmir Turkey
10. Massalha N., Hussien M., Gretrel T., and Sabbah I., Improvement of biogas production of cow manure digester by the addition of different agro-industrial wastes. IAMWA, June 17, 2010, Izmir, Turkey.
11. Sabbah I., Agro-industrial wastewater = good biogas potential, Why?, June 2009, Terni Italy
12. Baransi K. Dubowski Y. and Sabbah I. The effect of photocatalytic degradation and adsorption processes on the removal of phenolic compounds from agro-industrial effluent, June 2009, Terni, Italy
13. Sabbah I., and Massalha N., Development of biomass adaptation for the treatment of strong wastewater (Agro-industrial)-Olive Mill Waste (OMW) as a model. The 6th Israeli Water Association, March 25, 2009, Kfar Hamkbia, Israel.
14. Massalha N., Green M., and Sabbah I., Combined CEPT with Intermittent Bio-Filter for WWT in Rural Areas. The 6th Israeli Water Association, March 25, 2009, Kfar Hamkbia, Israel.
15. Sabbah I., Ball, WP, D'Adamo, PC, and Bouwer, 2009. Modeling the Effect of Aging on Naphthalene and Phenanthrene Desorption Rates from Environmental Solids. Xenowac-2009 Conference March 10-13, 2009, Paphos, Cyprus (Oral & Paper)
16. Baransi K. Dubowski Y. and Sabbah I. Synergetic effect of photocatalytic degradation and adsorption processes on the removal of phenolic compounds from agro-industrial effluent. Xenowac-2009 Conference March 10-13, 2009, Paphos, Cyprus (poster)
17. Sabbah I., Yazbak A., and Basheer S., Decreasing the start-up period of anaerobic sludge blanket (UASB) reactor for the biodegradation of olive mill wastewater. Paper and Poster presentation at the "New Technologies for the Treatment and Valorization of Agro by Products" conference, October 3-5, 2007, Terni, Italy.
18. Massalha, N., Basheer S., and Sabbah I., The effect of immobilization of microbial cells on bioavailability and rate of biodegradation of phenol at high concentration. Paper and oral presentation at the first Mediterranean Congress "Chemical Engineering for Environment", October 4-6, 2006, San Servolo Venice, Italy.
19. Sabbah I., Ghattas B., Hayeek A., Massalha N., Rabi A., El-Araby A., Wasef E., Mehawed H., Smadar A., Lahav O., Tarre S., Shaul N., Beliavski M., and Green M. Appropriate Technologies for Wastewater Treatment and Reuse in the Rural Areas of the Middle East- Case Study of Successful Regional Cooperation. Paper presented at the Annual Conference of the 2ed Israeli-Palestinian International (Water for Life in the Middle East), October 10-14, 2004, Antalya, Turkey.
20. Basheer S., Sabbah I., Yazbak A., Haj J., Saleeba A., Hayeek B., Musa M., Khateeb A., Suboh Y., and Galil N., 2004. Reducing the environmental impact of olive mill wastewater in the Middle East region. Paper presented at the Annual

- Conference of the 2ed Israeli-Palestinian International (Water for Life in the Middle East), October 10-14, 2004, Antalya, Turkey.
21. Green M.*, Shaul N., Beliavski M, Sabbah I., Ghattas B., and Tarre S., Minimizing land requirements and evaporation in extensive wastewater treatment systems. IAWQ Conference on Wetland Systems, Avignon, 2004.
 22. Sabbah, I., Ball, WP, D'Adamo , PC, and Bouwer, 2004. Modeling the Effect of Aging on Naphthalene and Phenanthrene Desorption Rates from Borden Sand. Symposium honoring prof. O'Melia, 228th ACS National Meeting, August 22-26, 2004, Philadelphia, PA, USA. (Paper and poster)
 23. Nguyen, TH, Sabbah I., and Ball WP., 2004. Immobilization of nanoparticles in diatomaceous earth: A synthetic sediment for studying sorption by environmental black carbon. Symposium honoring prof. O'Melia, 228th ACS National Meeting, August 22-26, 2004, Philadelphia, PA, USA. (Paper)
 24. Nguyen, T.H., Sabbah, I., Ball, W.P., 2004. Measures of sorption non-linearity for hydrophobic chemicals with diesel soot. Presented at the 7th Humic Substances Seminar, March 17-19, 2004, Boston, MA.
 25. Basheer S., Sabbah I., Yazbak A., Haj J., Saleeba A., Hayeek B., Musa M., Khateeb A., Suboh Y., and Galil N., 2004. Reducing the environmental impact of olive mill wastewater in the Middle East region. Paper presented at the Annual Conference of the Israeli Water Association, May 19, 2004, Kffar Hamaccabia, Ramat Gan.
 26. Nguyen T.H., Sabbah I., Ball W.P., 2003. Precise measures of sorption non-linearity for hydrophobic chemicals with diesel soot. Paper presented at the 226th ACS National Meeting, September 7-11, 2003, New York City, NY.
 27. Sabbah I., Bouwer E.J., and Ball W.P., "Diffusion as a Source of Confusion: Complications and Misconceptions in the Interpretation of Desorption Data," poster presentation at the Gordon Research Conference on Environmental Sciences: Water, Plymouth, NH, June 23-27 (2002).
 28. Sabbah I., Bouwer E.J., and Ball W.P., "Diffusion as a Source of Confusion: Complications and Misconceptions in the Interpretation of Desorption Data," poster, San Francisco, CA, Dec. 6-10; Eos, Transactions, American Geophysical Union, 83(47), Fall Meeting Supplement, Abstracts, H22A-0874 (2002)
 29. Ball, W.P., Sabbah I. and Paraskewich, M.R. Jr., "Sorbed-Phase Remediation under Diffusion-Limited Conditions: The Role of Equilibrium Driving Forces and Initial Conditions," invited presentation, San Francisco, CA, Dec. 6-10; Eos, Transactions, American Geophysical Union, 83(47), Fall Meeting Supplement, Abstracts, H21E-08 (2002).
 30. Sabbah, I., Bouwer E.J. and Ball W.P., "Diffusion as a Source of Confusion," presentation at International Conference on PAH and BTEX Contamination, co-sponsored by CHSUE and NSF Industry/University Cooperative Research Program, Johns Hopkins University, Baltimore, MD, June 2 (2003).
 31. Ball, W.P., Sabbah I. and Bouwer E.J., "Co-Contaminant Effects on Risk Assessment and Remediation Activities in Urban Settings," presentation at the ORD/HSRC/OSWER Meeting on Superfund Research, , Cincinnati, OH, August 26-27 (2003).
 32. Nguyen, T.H., Sabbah I., and Ball W.P., "Precise Measures of Sorption Non-Linearity for Hydrophobic Organic Chemicals with Diesel Soot," presentation at the 226th ACS National Meeting, NY, NY, Sept. 7-11, Preprints of Extended Abstracts, 43(2), Abstract #120, American Chemical Society, Division of Environmental Chemistry (2003).

33. Sabbah I, Ghattas B., Hayeek A., Omari J., Haj Y., Admon S. and M. Green M. Intermittent Sand Filtration for Wastewater Treatment In Rural Areas of the Middle East—A Pilot Study, Fifth Specialised Conference on” Small Water and Wastewater Treatment Systems, September 24-26, 2002, Istanbul, Turkey. (Oral and paper)
34. Sabbah I., Bouwer E.J., and Ball W.P. Diffusion as a Source of Confusion: Complications and misconceptions in the interpretation of desorption data. Gordon Research Conference, Environmental Sciences: Water, June 23-28, 2002, Holderness School, Plymouth, NH (Poster)
35. Sabbah I., Marzook T and Basheer S. Anaerobic Systems for Reducing the Environmental Impact of Olive Mill Wastewater, the 9th World Congress “Anaerobic Digestion 2001 Antwerpen, Belgium, September 2-5, 2001. (Oral and paper)
36. Sabbah I., Basheer S. and Marzook T. “Olive Mill Wastewater Treatment in the Galilee region.” Haifa, May, 2000. (Oral and Abstract)
37. Sabbah I., Gerstl Z. and Rebhun M. "Effect of DOM on the transport and remediation of PAH from contaminated sites". Interfaces Against Pollution Conference of the IUPAC Commission on Colloid and Surface Chemistry Including Catalysis, 10-13 August, 1997, Wageningen, The Netherlands. (Oral and Abstract)
38. Laor, Y., Meir S., Sabbah I. and Rebhun M. "A new method to determine binding coefficients of organic contaminants to dissolved humic substances." Poster presentation, "Interfaces Against Pollution" Conference of the IUPAC Commission on Colloid and Surface Chemistry Including Catalysis, 10-13 August, 1997, Wageningen, The Netherlands. (Poster)
39. Rebhun M., Rav-Acha Ch., Sabbah I., Rwebabula J. and DeSmedt F. "Sorption-desorption and complexation processes of the adsorbed and aqueous fraction of NAPL-importance for complete clean-up of aquifers". International Workshop on Soil and Aquifer Pollution, May 13-15, 1996, Haifa. (Oral and paper)
40. Sabbah, I. and Rebhun M.) "Adsorption-desorption of TCP in soil-water systems related to groundwater contamination and remediation." Paper and poster presented at WEFTEC '96, Dallas, Texas, October 1996. (Poster)
41. Sabbah I. and Rebhun M. (1995) "Adsorption-desorption of TCP in clay-water systems." Conference of the Israel Society of Clay Research, Tel-Aviv, Israel. (Oral)

Other Publications

Professional Reports:

1. Sabbah I., Masalha N., Hayeek A., and Yazbak A., (2003). Biosorbent development for enhancing biological activity of toxic compounds. Annual Research Report submitted to the Ministry of Science, Israel.
2. Sabbah, I., Admon S., and Green M., (2001). “Vertical Beds for Wastewater Treatment in the Rural Area.” Final Research Report submitted to the Ministry of Science, Israel.

3. Sabbah I., Marzook T. Admon S. and Green M., (2000) "Vertical Beds for Wastewater Treatment in the Rural Area." Annual Research Report submitted to the Ministry of Science, Israel.
4. Sabbah I., Lahav O., Admon S. and Green M., (1999) "Vertical Beds for Wastewater Treatment in the Rural Area." Annual Research Report submitted to the Ministry of Science, Israel.
5. Beck AJ., Cooke C., Ropkins C. and Sabbah I. (1999), "Elucidation of the Role of Organic Matter in the Sorption of Organic Chemicals to Soils and the Implications for Compound (Bio) availability as Evident from Potential 'Partition' into the Aqueous Phase." Final Report Submitted to the National Environmental Research Council (NERC), UK.
6. Basheer S., Sabbah I. and Marzook T. (1999) "Olive Mill Wastewater Treatment in the Galilee region." Annual Research Report submitted to the Ministry of Science, Israel.
7. Sabbah I., Zrek N. and Aslieh S., (1997) "Wastewater survey –quantity and quality for Ramat-Livanim project." Report submitted to the Israeli Wastewater Authority.
8. Rebhun, M., Laor Y., **Sabbah I.**, and Gerstl Z. (1998) "Sorption and release of petroleum derived pollutants in the groundwater subsurface as a means for remediation of contaminated sites." Annual Report on a research project of the Water Research Institute, Technion-Israel Institute of Technology, Haifa.
9. Rebhun, M., Sabbah I., Sheintuch M. and Gerstl Z. (1997) and (1996) "Sorption and release of petroleum derived pollutants in the groundwater subsurface as a means for remediation of contaminated sites." Two Annual Reports on a research project of the Water Research Institute, Technion-Israel Institute of Technology, Haifa.
10. Ghattas B., Sabbah I. and Zrek N. (1995) "Alternative and innovative solutions for sewage treatment and effluent reuse in the rural areas in Israel." Annual Research Report submitted to the Ministry of Science, Israel.
11. Ghattas B., Sabbah I. and Zrek N. (1996) "Alternative and innovative solutions for sewage treatment and effluent reuse in the rural areas in Israel." Annual Research Report submitted to the Ministry of Science, Israel.
12. Ghattas B., Sabbah I. and Zrek N. (1997) "Alternative and innovative solutions for sewage treatment and effluent reuse in the rural areas in Israel." Final Research Report submitted to the Ministry of Science, Israel.