

Curriculum Vitae

Ziad Abu El-Rub, PhD, JPE

PERSONAL INFORMATION

Assistant Professor in Chemical Engineering
German Jordanian University
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CAREER SUMMARY

- Accomplished PhD Chemical Engineer
- A Jordanian Professional Engineer (JPE) in Bioenergy Engineering
- Conducting a high-level scientific research focused on bioenergy, shale oil production, and membrane separation.
- A dedicated researcher with strong teaching experience.
- Distinguished industrial experience in the oil and gas sector with leadership roles involving Business Development Manager, and Regional Manager for Middle East and North Africa.
- Developing a strategic relationship with the industry through chairing the GJU industrial relations committee (IRC).
- Sophisticated knowledge of multicultural and interdisciplinary teams.
- Fluent in Arabic and English.

EDUCATION

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| 2007 | Ph.D. in Chemical Engineering
Thermal Engineering Laboratory, University of Twente, Enschede, the Netherlands
Dissertation: Biomass char as an in-situ catalyst for tar removal in gasification systems
Supervisor: Prof. Gerrit Brem |
| 2002 | Master of Technological Design (Equivalent to PDEng)
Process Development Department, University of Twente, Enschede, the Netherlands
Thesis: High temperature catalytic tar removal from producer gas of biomass fueled gasifiers |
| 2000 | M.Sc. courses in Chemical Engineering
Chemical Engineering, Chemical Engineering Department, University of Jordan, Amman, Jordan, GPA: 3.86 /4.00 (Rank: 1 st) |
| 1998 | B.Sc. in Chemical Engineering
Chemical Engineering Department University of Jordan, Amman, Jordan
Thesis: Plant design for production of biogas from Amman's municipal solid waste, GPA: 3.48 /4.00 (Rank: 3 rd) |

PROFESSIONAL CERTIFICATES

- | | |
|------|---|
| 2015 | Professional Engineer (JPE) in Bioenergy Engineering
Jordan Higher Council for Professional Qualifications and Accreditation,
Jordan Engineers Association, Amman, Jordan |
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INDUSTRIAL EXPERIENCE

- 2/2011 - 6/2012 **Regional Manager for Middle East and North Africa**, ASCOM Separation Company, Arnhem, the Netherlands.
Oversaw the development of process design and technical sales of ASCOM's separation technologies in the MENA region that resulted in meeting target sales.
- 2/2007 - 11/ 2010 **Business Development Manager**, Petrolink Holding Company, Kuwait
Managed a project for establishing a US\$120mn large-scale polyethylene terephthalate (PET) plant in Kuwait that resulted in successful submission of all technical studies. Worked closely with investment companies and technology developers that resulted in market assessment, technical, and commercial viability of different energy and petrochemical projects.
- 8/1998 - 10/1999 **Quality Control Manager**, National Paints Factories, Amman, Jordan
Managed the quality control labs of the finished products and raw materials

TEACHING EXPERIENCE

- 7/2016 Training of the trainer, Beuth Hochschule für Technik Berlin, Berlin, Germany
1- Chemical Reaction Engineering
- 2012-present **German Jordanian University**, Department of Pharmaceutical and Chemical Engineering, Instructor for the following courses and laboratories:
2- General Chemistry
3- General Chemistry Lab
4- Introduction to Pharmaceutical and Chemical Engineering
5- Principles of Chemical Engineering
6- Fluid Mechanics for Chemical and Medical Engineers
7- Chemical Reaction Engineering
8- Chemical Engineering Economics
9- Fluid, Heat and Reaction Engineering Lab
10- Industrial Processes Management
11- Pharmaceutical Plant Design
12- Separation Processes Lab
13- Graduation Project I
14- Graduation Project II
15- Special topics: Shale Oil Production Processes
16- Special Topics: Introduction to Oil and Gas Production
17- Special Topics: Technical Writing
- 2002-2007 **University of Twente**, Thermal Engineering Laboratory, Teaching Assistant
Transport Phenomena

HONORS AND RECOGNITION

2018	Second Prize in Industrial Graduation projects competition 2017 – Chemical Engineering, organized by the Jordan Engineers Association and Amman Chamber of Industry.
2017	First Prize –Graduation projects competition 2016 – Chemical Engineering, organized by the Jordan Engineers Association and Amman Chamber of Industry.
2017	GJU award of academic excellence
2016	Train the train award, training at Beuth Hochschule für Technik Berlin, Germany, 30 June – 1 Aug. 2016
2016	Third Prize –Graduation projects competition 2015 – Chemical Engineering, organized by the Jordan Engineers Association and Amman Chamber of Industry.
2016	Certificate of excellence for distinguished academic performance for the year 2016, German Jordanian University.
2013-2016	Industrial experience allowance, German Jordanian University
1998-2000	Teaching Research Assistant Scholarship, MSc Chemical Engineering, Chemical Engineering Department, University of Jordan (1998-2000)
1997	University of Jordan Summer Training scholarship, Larissa, Greece (1997)
1994-1998	Honor List, College of Engineering, University of Jordan (1994-1998)
1993-1998	BSc Royal Scholarship, Chemical Engineering Department, University of Jordan (1993-1998)

PUBLICATIONS

Journal papers:

Total google scholar citations up to 7 May 2018: (> 862 citations)

1. Samer Al-Gharabli, Eyad Hamad, Munib Saket, **Ziad Abu El-Rub**, Hassan Arafat, Wojciech Kujawski and Joanna Kujawa. (2018). Advanced material - ordered nano-tubular ceramic membrane covalently capped with single wall carbon nanotubes. *Materials* 2018, 11(5), 739, doi: <https://doi.org/10.3390/ma11050739>, (Q1, 5-Year IF: 3.236)
2. Samer Al-Gharabli, Wojciech Kujawski, **Ziad Abu El-Rub**, Eyad M. Hamad, Joanna Kujawa. (2018). Enhancing membrane performance in removal of hazardous VOCs from water by modified fluorinated PVDF porous material. *Journal of Membrane Science*, 556, 214-226, doi: <http://dx.doi.org/10.1016/j.memsci.2018.04.012>, (Q1, five years IF: 5.983)
3. **Abu El-Rub, Z.**, Brem, G., & Bramer, E. A. (2015). Single Char Particle Model for Naphthalene Reduction in a Biomass Gasification System. *Biomass and Bioenergy*, 72, 19-27. doi: <http://dx.doi.org/10.1016/j.biombioe.2014.11.021>, (Q1, five years IF: 4.186)
4. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2008). Experimental comparison of biomass chars with other catalysts for tar reduction. *Fuel*, 87(10–11), 2243-2252. doi: <http://dx.doi.org/10.1016/j.fuel.2008.01.004>, (Q1, five years IF: 4.726)
5. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2004). A Review of Catalysts for Tar Elimination in Biomass Gasification Processes. *Ind. Eng. Chem. Res.*, 43, 6911-6919. doi: <http://dx.doi.org/10.1021/ie0498403>, (Q1, IF (2016): 2.843)

Conference papers:

6. **Abu El-Rub, Z.**, Kähler, B., Al-Khatib, J. (2017). *University Industry Collaboration: A Case Study from the German Jordanian University*. In: 3rd MENA Higher Education Leadership Forum, Dubai, UAE.
7. Taftanazi, Y., Neumann, H., Burger, D., Hagelstein, G., **Abu El-Rub, Z.**, Gschwander, S. (2017), *Stability study of Phase Change Material between 100 °C and 200 °C*. Paper presented at the the 8th Jordan International Chemical Engineering Conference, Amman, Jordan.
8. **Abu El-Rub, Z.**, Brem, G., Bramer, E.A. (2016). *Parameters affecting the removal of naphthalene over fixed biomass char bed*. In: Venice 2016, Sixth International Symposium on Energy from Biomass and Waste, CISA, Venice, Italy.
9. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2016). *Naphthalene Removal Experiments over a Fixed Bed of Biomass Char*. Paper presented at the 5th Global Conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER 2016), Amman, Jordan.
<http://conferences.ju.edu.jo/sites/gcreeder/gcreeder2016/Pages/Home.aspx>
10. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2015). *Real Tar Removal over Fixed Bed of Biomass Char*. Paper presented at the 23rd European Biomass Conference and Exhibition, Vienna, Austria.
11. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2014). *Formulation of a Single Char Particle Model for naphthalene Removal in Biomass Gasification*. Paper presented at the the 7th Jordan International Chemical Engineering (JICHe 07) Conference, Amman, Jordan.
12. Al-Gharabli, S. I., **Abu El-Rub, Z.**, & Khanfar, M. F. (2014). *High Throughput Screening of Oil Content in Jordanian Oil Shale Using ATR-FTIR and Refractive Index Techniques*. Paper presented at the the 7th Jordan International Chemical Engineering (JICHe 07) Conference, Amman, Jordan.
13. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2004, 30 Aug to 2 Sep). *Modeling of Tar Reduction in Biomass Gasification Using Biomass Char as a Catalyst*. Paper presented at the Science in Thermal and Chemical Biomass Conversion, Victoria, Vancouver Island, BC, Canada,.
14. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2004, 10-14 May). *Tar Reduction in Biomass Gasification Using Biomass Char as a Catalyst*. Paper presented at the Proceeding of Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection, Rome.
15. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2003, 2 September - 5 September). *Tar Removal in Fixed Bed with Application to Biomass Gasification*. Paper presented at the International Nordic Bioenergy 2003 Conference, Proceeding of an Expert Meeting, Jyväskylä, Finland.
16. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2002, 17-21 June). *Removal of Naphthalene as the Model Tar Compound on Calcined Dolomites, Olivine and Commercial Nickel Catalyst in a Fixed Bed Tubular Reactor*. Paper presented at the 21th European Conference for Energy, Industry and Climate Protection, Amsterdam, The Netherlands.

17. **Abu El-Rub, Z.**, Bramer, E. A., & Brem, G. (2002, 30 September - 1 October 2002). *Tar Removal in an Entrained Flow Cracker (EFC) with Application to Biomass Gasification*. Paper presented at the Pyrolysis and Gasification of Biomass and Waste, Strasbourg, France.

RESEARCH

Research Interest

- Bioenergy: development of sustainable energy and fuels from biomass and waste
- Oil Shale production
- Separation: membrane separation, and physical separation of crude oil-water-gas-sand

Previous Research Experience

- 2/2002-6/2012
 - Research Assistant, Advanced Separation Company (ASCOM), Arnhem, the Netherlands
 - Designed and qualified advanced separation equipment of crude oil, water, gas and sand
- 2/2002-1/2007
 - Research Assistant, Thermal Engineering Laboratory, University of Twente, Enschede, the Netherlands
 - Designed a process for Catalytic tar removal in biomass gasification
- 2/2000-1/2002
 - Research Assistant, Process Development Department, University of Twente, Enschede, the Netherlands
 - Played a key role in a framework of numerous short projects covering the main aspects of chemical engineering and process design

Research Advisees

MSc Theses

1. Mathijs Snippert, Characterization of biomass char as a catalyst for tar reduction in a fixed bed reactor, University of Twente, Thermal Engineering Laboratory, MSc Thesis, June 2004.
2. Jorke Jellema, Catalytic Tar Reduction from Biomass Gasification Gas using Wood Char as a Catalyst, University of Twente, Thermal Engineering Laboratory, MSc Thesis, July 2003.

BSc Theses

1. Adel Karadshih, "Kinetic investigation of ammonia synthesis catalysts", hte GmbH, Germany, BSc Thesis, June 2018
2. Hane Al Ajeilat, Design of a Tannery Wastewater Treatment Facility for the Modern Company for Tanning", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2018
3. Danielle Hallak and David Khzouz, "Investigation of Jordanian Minerals as Potential Catalysts for Tar Elimination in Biomass Gasification Systems", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2018
4. German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2018

5. Dina Jweihan, "Investigation of the effect of heating rates on the BET surface area of Jordanian minerals, German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Feb. 2018
6. Jamal Daboul, "Proposed Fragrances Manufacturing for Household Products at Alwazir Plant", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jun. 2017
7. Ghaidaa Al-Mutaireen, "Experimental Design of Microwave Assisted Pyrolysis of Polystyrene", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jun. 2017.
8. Yahya Taftanazi, "Stability study of Phase Change Material between 100 °C and 200 °C", Fraunhofer institute for solar energy, Freiburg, Germany, BSc Thesis, Feb. 2017.
9. Karam Masadeh and Mohammad Abu Obeid, "Technical and Economic Evaluation for a PV-Enhanced Evaporation Wastewater Treatment Facility at ARAL Plant", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jan. 2017.
10. Abdelrahman Budair and Anas Bader, "Investigation of Jordanian Minerals as Potential Catalysts for Tar Elimination in Biomass Gasification Systems", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jan. 2017.
11. Shaden Musa, "Preparation and Characterization of Lignin Based Hydrophobic Macroporous Membranes", TH Koeln, Germany, Feb. 2016
12. Ghassan Zurikat and Hussein Hamandi, "Condensate Recovery System in Jordan Petroleum Refinery Company (JPRC)", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2016.
13. Dana Maani and Fatima Hussain, "Improving the chemical aspect of a designed machine for converting restaurant's waste oils into biodiesel" German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jan. 2016.
14. Zahra Aswad, "Treatment of Olive Mill Wastewater", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Jan. 2016
15. Mahmood Al-Sammarraie, "Finding a cost-effective approach to reduce the concentration of dissolved solids in wastewaters resulting from an Anodizing process", German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Sep. 2015.
16. Yasmeen Majeed, Development of novel insulating paints from local natural resources, German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2015.
17. Majjd AlNajjar, Investigating experimental correlation between Fischer Assay yield of oil shale and Thermogravimetric Analysis (TGA), German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, June 2015.
18. Heba Sacca, Evaluation of Fabric Staining Prevention Approaches for Nivea Sun Care, Beiersdorf Company, Hamburg, Germany, BSc Thesis, Feb. 2015.
19. Ibrahim Tbaileh and Dirgam Amro, Technical and economic evaluation for an Olive Cake gasification plant to produce electricity, German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Sep. 2014.
20. Reem Dawood and Ali Alnawateer, Technical and economic evaluation for a MSW biomass gasification plant for electricity production in Jordan, German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Mar. 2014.

21. Nour Al-Jabery, Technical and Preliminary Economic Evaluation for Producing Shale Oil in Jordan, German Jordanian University, Department of Pharmaceutical Chemical Engineering, BSc Thesis, Aug. 2013.
22. Aya Bitar, Revalidation of a test prescribed for characterization and quantification of AMT (4-Aminomethyltrioxsalen-Hydrochloride), Roche diagnostics Company, Penzberg, Germany, BSc Thesis, Jan. 2013.

FUNDING

- 1) Project title: Elimination of Tar produced form biomass gasification using Jordanian low-cost mineral catalysts
 Supporting Authority: GJU
 Role: PI
 Grant: JD 70,000
 Duration: 2016-2018

- 2) Project title: Vocational training Center for undergraduate university students and teachers in Jordan
 Supporting Authority: ERASMUS+
 Role: Coordinator for GJU
 Grant: Grant amount for GJU: € 71, 370
 Total Grant: € 689,938
 Duration: Oct. 2015- Oct. 2018

- 3) Project title: Experimental & Economic Evaluation of a Designed Machine for Converting WCO into Biodiesel
 Supporting Authority: KADDB and KAFD
 Role: Supervisor on a BSc graduation project
 Grant: JD 5,000
 Duration: Feb 2015-Feb-2016 (Completed)

CONFERENCES PRESENTATIONS

- **Abu El-Rub, Z.** “Dissemination and Implementation Lecture for VTC Project”, 6th global conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER-2018), 3-5 Apr 2018, Amman, Jordan.
- **Abu El-Rub, Z.** “Removing Model Tar Component over a Fixed Bed of Biomass Char”, International Conference of Young Scientists on Innovative Applied Renewable Energy Researches, 18-20 May 2014, German Jordanian University, Amman, Jordan
- **Abu El-Rub, Z.**, Bramer, E.A., Brem, G., “Formulation of a Single Char Particle Model for naphthalene Removal in Biomass Gasification” published in the 7th Jordan International Chemical Engineering (JICHE 07) Conference, Amman, Jordan, 4-6 Nov. 2014
- **Abu El-Rub, Z.**, “Oil Shale Retorting Technologies –Jordanian Perspective”, Chemical Engineering Scientific Day, 8 May 2014, Al-Huson College – Al-Balqa University, Irbid, Jordan.

- Vilas S. Koleshwar, Khaled A. Al-Yousef, R. Schook, **Z. Abu El-Rub**, “De-bottlenecking of Produced Water Treatment in Mature Heavy Oil Fields” Oil and Gas Water Management: From Reservoir to Reuse/Disposal, 20 – 21 March 2012, Intercontinental Hotel, Al-Khobar, Saudi Arabia
- **Abu El-Rub, Z.**, "Inline Desander Qualification", 2nd Annual 2012 Global Sand Management and Control Workshop, 27 Feb-01 Mar 2012, Dubai, UAE.
- Vilas S. Koleshwar, Khaled A. Al-Yousef, R. Schook, **Z. Abu El-Rub**, “De-bottlenecking of Produced Water Treatment in Mature Heavy Oil Fields”, 4th Annual 2011 Global Produced Water Management, 24-28 Oct. 2011, Istanbul, Turkey.
- **Abu El-Rub, Z.**, Bramer, E.A., Brem, G., Tar removal using biomass char as a catalyst, Biomass AIO day, held at Wageningen UR, Thursday 29th September 2005.
- **Abu El-Rub, Z.**, Bramer, E.A., Brem, G., Tar reduction using char as a catalyst, Biomass Conversion Symposium, TU Eindhoven/TDO, 11 March 2005.
- **Abu El-Rub, Z.**, Bramer, E.A., Brem, G., High Temperature Catalytic Tar Removal from Producer Gas of Biomass Fueled Gasifiers, Netherlands Process Technology Symposium (NPS4), 26-27 Oct. 2004, Veldhoven, The Netherlands.
- **Abu El-Rub, Z.**, Bramer, E.A., Brem, G., High Temperature Catalytic Tar Removal from Producer Gas of Biomass Fueled Gasifiers, Netherlands Process Technology Symposium (NPS3), 28-29 Oct. 2003, Veldhoven, The Netherlands.

UNIVERSITY SERVICE

12/2016-Present	Dean Assistant for Industrial Relations
10/2015-Present	GJU-VTC Project Coordinator
5/2016-present	Head of GJU Industrial Relations Committee
12/2014-present	Liaison officer with GJU Training Center
2014-2015	Faculty of Applied Medical Sciences Council
2014-present	Graduation Projects Coordinator
2013-2014	German Jordanian University Council
2013-2014	Laboratory and tenders Committee
2013-2014	Furnishing Laboratories Committee
2013-2014	Quality and accreditation committee
2013-2014	Study plan committee
2013-2014	Scientific research committee
2013-2014	Faculty recruitment committee

PROFESSIONAL ACTIVITIES

9-11 /10/2018	Member of the organizing committee of the Second International Oil Shale Conference to be held on 9-11 Oct. 2018 in Amman, Jordan
5/2018 – 5/2021	Board member of the Chemical Engineering Division for the period 2015-2018, Jordan Engineers Association, Amman, Jordan
8/2016 – 2/2017	Head of JEA Branches Committee for Workshops, Jordan Engineers Association, Amman, Jordan

4/2016 – present	Advisory board member of Engineering Training Center, Jordan Engineers Association, Amman, Jordan
5/2015 – 5/2018	Board member of the Chemical Engineering Division for the period 2015-2018, Jordan Engineers Association, Amman, Jordan
2014-2015	Member of the Chemical Engineering Graduation Projects Evaluation Committee, Jordan Engineers Association, Jordan
3/2014 – present	Member of the Advisory Board for the Chemical Engineering Department at Jordan University for Science and Technology
4-6 /11/2014	Vice President of the Preparatory Committee of the seventh Jordan International Chemical Engineering (JIChE 07) Conference to be held in Amman, Jordan
21/11 /2013	Chairman of the workshop “Oil Shale in Jordan: Reality, Potential and Limitations” Jordan Engineers Association, Amman, Jordan
1/2013 – 5/2015	Chairman of Chemical Engineering Scientific Committee at Jordan Engineering Association, Amman, Jordan
27/2/-1/3/2012	Steering committee member, 2 nd Annual 2012 Global Sand Management and Control Workshop, Dubai, UAE
24-28/10/2011	Steering committee member, 4 th Annual 2011 Global Produced Water Management Workshop, Istanbul, Turkey

MEMBERSHIPS

2006-present	Jordan Engineers Association
2009	Society of Petroleum Engineers

JOURNAL REVIEWER

2005-present	Industrial & Engineering Chemistry Research
2008-present	Energy & Fuels
2008-present	Fuel Processing Technology
2013-present	Biofuels
2014-present	Energy & Fuels

LANGUAGES

Arabic:	Mother language
English:	Fluent
Dutch:	Basic
German:	Basic

SKILLS

MS Office Applications:	Word, Excel, Power Point, Outlook, MS Visio, MS Project
Chemical Engineering Softwares:	ASPEN PLUS, COMSOL

Mathematical Softwares:

MATHCAD, MATLAB

REFERENCES

1. Prof.dr.ir Gerrit Brem, Energy Technology (CTW), Faculty of Engineering Technology, University of Twente, P.O. box 217, 7500 AE Enschede, The Netherlands, Phone: + 31 (0)53 489 2561, E-mail: g.brem@utwente.nl
2. Prof. Naim M. Faqir, Department of Chemical Engineering, King Fahd University of Petroleum & Minerals, Dhahran-31261, Kingdom of Saudi Arabia, E-mail: faqir@kfupm.edu.sa
3. Prof. Fahmi Abu Al-Rub, Chemical Engineering Department, Faculty of Engineering, Jordan University of Science & Technology, P.O. Box 3030, Irbid, Jordan, Tel: +962 2 7201000, E-mail: abualrub@just.edu.jo
4. Ms. Marsha Lazareva, Vice Chairman of Petrolink Holding Company; Managing Director of KGL Investment, P.O. Box 24565, Safat 13106 Kuwait, Tel: +965 2246444. Fax: +965 2246424, E-mail: marsha@kglinvest.com
5. Mika K. S. Tienhaara, Managing Director of ASCOM Separation, Westervoortsedijk 71 K, 6827 AV Arnhem, The Netherlands, Tel: +31-26-368 4450, Fax: +31-26-368 4451, E-mail: tienhaara@ascomsep.com