

## Ahmad Aqel Abdelfattah IFSEISI

Assistant Professor of Analytical Chemistry  
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Place & Date of Birth: Kuwait, 21<sup>th</sup> of Dec. 1982

Nationality: Jordanian



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Author of more than **60** scientific contributions;  
**26** original papers, **2** review articles, **2** patents, **3** book chapters and  
**33** presentations in local and international conference proceedings

Web of Science  
Researcher ID U-5756-2017

Scopus  
Author ID 36503609900  
*h*-index: **10**, total citations: **456**

Orcid iD  
0000-0001-7895-6895

Google Scholar  
*h*-index: **12**, total citations: **627**

## EDUCATION

### **Oct/2008 – Nov/2012 ...**

**PhD** in Analytical Chemistry, King Saud University, (Riyadh – Saudi Arabia).

Rated as Excellent grade (4.74 / 5).

Thesis Title: "Preparation and Characterization of Novel Capillary Monolithic Columns and Application on a Modified Liquid Chromatograph".

Advisor: Prof. Abdulrahman A. Alwarthan.

Co-Advisor: Prof. Ahmed-Yacine Badjah-Hadj-Ahmed.

Courses covered in this program: advanced inorganic chemistry, applied physical chemistry, advanced organic chemistry, different topics in analytical chemistry, advanced studies in instrumental analysis, applied analytical chemistry, selected topics in analytical chemistry, and six comprehensive exams and a personal meeting.

### **Oct/2005 – Jan/2008 ...**

**MSc** in Analytical Chemistry, The Hashemite University, (Zarqa – Jordan).

Rated as Excellent grade (3.72 / 4).

Thesis Title: "Development of Preconcentration Method for Some Pesticides in Water Samples Using Carbon Nanotubes Prior to High Performance Liquid Chromatographic Analysis".

Advisor: Prof. Amjad H. El-Sheikh.

Co-Advisor: Prof. Jamal A. Sweileh.

Courses covered in this program: quantum chemistry, mechanistic of organic compounds, advanced analytical analysis, advanced inorganic chemistry, laser and its chemical applications, inorganic reaction mechanisms and applications of complexes, research methods in chemistry and chemical kinetics and dynamics.

### **Oct/2001 – Jun/2005 ...**

**BSc** in Chemistry major, The Hashemite University, (Zarqa – Jordan).

Rated as Very Good grade (3.26 / 4).

### **2000/2001 ...**

High School: The General Secondary Education Certificate (the Scientific Track).

Mu'awiyah ibn Abi-Sufyan Secondary School, (Zarqa – Jordan).

## EMPLOYMENT HISTORY

### **Aug/2013 – Present ...**

Assistant Professor, Chemistry Department, College of Science, King Saud University, Riyadh, Kingdom of Saudi Arabia.

### **Jan/2013 – Present ...**

Researcher, Advanced Materials Research Chair, Chemistry Department, College of Science, King Saud University, Riyadh, Kingdom of Saudi Arabia.

### **Oct/2008 – Jul/2013 ...**

Researcher, King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Kingdom of Saudi Arabia.

**Mar/2008 – Aug/2008 ...**

Researcher, Laboratory of Analytical Chemistry, Chemistry Department, The Hashemite University, Zarqa, Jordan.

**Oct/2005 – Oct/2007 ...**

Teaching Assistant, Chemistry Department, The Hashemite University, Zarqa, Jordan (as a part of a Master student employment program).

**Feb/2004 – Jun/2004 ...**

Laboratory Demonstrator, Chemistry Department, The Hashemite University, Zarqa, Jordan (as a part of Bachelor student employment program).

## **EXPERIENCE**

- Proposal and supervision of yearly theoretical and practical trainings on chromatography techniques in cooperation with the Chemistry Department and Saudi Chemical Society at King Saud University, Advanced Materials Research Chair Laboratories, since 2013.

- **Scientific and administrative committees**

- Committee of promotion of scientific research at College of Science, King Saud University, since Nov 2015.

- Committee of academic accreditation and assessment at Chemistry Department, King Saud University, since Feb 2016.

- Committee of development and quality at Chemistry Department, King Saud University, since Nov 2016.

- Committee of statistics at Chemistry Department, King Saud University, since Jan 2018.

- A member of a committee of preparation and approval of the Applied Chemistry program (interdisciplinary program between Chemistry, Physics, Chemical Engineering and Pharmaceutical Chemistry Departments), King Saud University, Oct 2018–now.

- Exams reviewer and corrector in MAWHIBA program for gifted and creative students, King Abdulaziz and his Companions Foundation for Giftedness and Creativity, Riyadh, Kingdom of Saudi Arabia (19–24 Apr 2018).

- **A number of theoretical and practical trainings as follows:**

- Practical training on Waters Acquity™ Ultra Performance LC - Tandem Quadrapole Detector TQD, with MassLynx software, Advanced Materials research Chair Laboratories, Department of Chemistry, College of Science, King Saud University (4–6 Apr 2010).

- Theoretical and practical training on Thermo Scientific Trace GC Ultra / FID and TCD, with ChromCard software, Advanced Materials research Chair Laboratories, Department of Chemistry, College of Science, King Saud University (20–24 Mar 2010).

-Theoretical and practical training on Thermo Scientific Finnigan Surveyor HPLC, with ChromQuest software, Advanced Materials research Chair Laboratories, Department of Chemistry, College of Science, King Saud University (6–10 Mar 2010).

- A number of training courses in different topics of teaching and active learning provided by Deanship of Skills Development and College of Science at King Saud University and Saudi Digital Library, Riyadh, KSA.

Examples: developing University teaching philosophy, strategies for student encouragement, course design and construction, learning theories, learning management system (blackboard), virtual classrooms, critical thinking and active learning, competencies of professional teaching, using Google tools in education, and effective college teaching.

- A number of training courses in different topics of scientific research, publishing and databases provided by Deanship of Skills Development at King Saud University and Saudi Digital Library, Riyadh, KSA.

Examples: web of science certification program, patent constituents and determinants, academic misconduct detection techniques (plagiarism), publication in international journals (ISI), projects and research proposals writing, scientific thesis supervision and discussion skills, international standards and skills in the arbitration of scientific research, searching skills in e-libraries and scientific databases, such as science direct, springer materials, nanotechnology, SciFinder and Britannica.

- A number of training courses and workshops in the quality and academic accreditation provided by the National Center for Academic Accreditation and Assessment, Deanship of Skills Development and College of Science at King Saud University, Riyadh, KSA.

Examples: academic programs outcomes evaluation, course specification and report, methods of learning outcomes assessment, and education evaluation commission standards.

- A number of training courses and workshops in the academic leadership, educational guidance, management and skills development provided by Deanship of Skills Development and College of Science at King Saud University, Riyadh, KSA.

Examples: project management professional (PMP), designing interactive presentation by Prezi, fast reading skills, fundamentals of information security, basics of academic leadership, work stress management, academic advising skills, and skills of effective communication.

- The major chromatographic instruments, and samples and materials preparation and characterization techniques used during the course of research work are as follows:

#### **HPLC systems ...**

- Waters Acquity™ Ultra Performance LC (with MassLynx 4.1 software).
- Dionex UltiMate 3000 nanoLC (with Chromeleon 7 software).
- Shimadzu semi-preparative LC system, LC-6AD (with LC solution software).
- Thermo Scientific Finnigan Surveyor LC (with ChromQuest 5.0 software).
- Shimadzu UFLC Prominence LC-20AD (with LC solution software).
- Shimadzu LC-2010AHT (with LC solution software).
- Shimadzu LC-6A (Chart Recorder).
- Perkin Elmer 785A LC Plus system (Chart Recorder).

### **GC systems ...**

- Thermo Scientific TSQ Quantum GC-MS (with Xcalibur 2.1 software).
- Thermo Scientific Trace GC Ultra / FID and TCD (with ChromCard software).
- Shimadzu GC-2025 / FID (with GC solution software).
- Shimadzu GC-2010 Plus for MS-QP2010 SE (with GC solution software).
- Hewlett Packard HP 5890 Series II GC (Chart Recorder).

### **Other systems and techniques ...**

- Direct Analysis in Real Time-Time of Flight-Mass Spectrometer (DART-ToF-MS).
- Packing Machine, Restek.
- Spectrophotometer, UV/VIS Spectrometer.
- FT-IR Spectrometer.
- Atomic Absorption Spectrometer (AAS).
- Inductive Coupled Plasma (ICP).
- Scanning Electron Microscope (SEM).
- Transmission Electron Microscope (TEM).
- X-Ray Diffraction (XRD).
- Optical Microscope with digital camera.
- Elemental Analyzer.
- Surface Area and Pore Size Analyzer.
- Sonic Sifter, AdvanTech.
- Thermal Gravimetric Analyzer (TGA & DSC).
- Solid Phase Processors (SPE & SPME).
- Flame Photometer.
- Freezing Point device.
- Polarimeter, Refractometer and Calorimeter.
- Conductivity and pH meters.

## **TEACHING EXPERIENCE**

### **Theoretical Courses ...**

#### **• General Chemistry**

Textbooks: (1) Theodore E. Brown, H. Eugene H LeMay, Bruce E. Bursten, Catherine Murphy, Chemistry, The Central Science, 11<sup>th</sup> ed., 2009, Pearson Education, Inc., USA (2) Raymond Chang, Chemistry, 10<sup>th</sup> ed., 2010, McGraw-Hill, USA.

#### **• Fundamentals of Analytical Chemistry**

Textbooks: (1) Gary D. Christian, Purnendu K. Dasgupta, Kevin A. Schug, Analytical Chemistry, 7<sup>th</sup> ed., 2013, Wiley, USA. (2) Douglas A. Skoog, Donald M. West, F. James Holler, Stanley R. Crouch, Fundamentals of Analytical Chemistry, 9<sup>th</sup> ed., 2014, Cengage Learning, USA.

#### **• Spectroscopic Analytical Methods**

Textbook: Douglas A. Skoog, F. James Holler, Stanley R. Crouch, Principles of Instrumental Analysis, 7<sup>th</sup> ed., 2018, Cengage Learning, USA.

#### **• Instrumental Methods of Analysis**

Textbook: Douglas A. Skoog, F. James Holler, Stanley R. Crouch, Principles of Instrumental Analysis, 7<sup>th</sup> ed., 2018, Cengage Learning, USA.

#### **• Chemical Separation & Chromatographic Methods**

Textbooks: (1) Douglas A. Skoog, F. James Holler, Stanley R. Crouch, Principles of Instrumental Analysis, 7<sup>th</sup> ed., 2018, Cengage Learning, USA. (2) Kevin Robards, Paul R. Haddad, Peter E.

Jackson, Principles and Practice of Modern Chromatographic Methods, 2012, Elsevier Academic Press, Netherlands.

- Research Methods

### **Laboratory Courses ...**

- General chemistry.
- Engineering chemistry.
- Basic analytical chemistry.
- Instrumental analysis.
- Chemical separation & chromatographic methods.
- Industrial analysis.
- Physical chemistry.
- Training on the chemistry instruments.

## **AREAS OF RESEARCH INTERESTS**

### **General Research Areas ...**

- Analytical chemistry.
- Separation and chromatography research.
- Environmental, pharmaceutical and plants analysis.
- Analytical methods development and validation.

### **Specific Research Areas ...**

- Preparation and development of chromatographic columns for HPLC and GC applications (conventional and capillary scales).
- Synthesis and characterization of polymer-based and composite stationary phases for chromatographic applications.
- Solid-phase extraction/microextraction and preconcentration of trace organic and inorganic samples using new adsorbents.
- Sample treatment, separation, purification and characterization of organic and inorganic species.
- Selective preconcentration of environmental and other samples using carbon nanotubes, activated carbon and modified adsorbents.

## **AWARDS AND PRIZES**

- King Saud University award for scientific excellence, 2014, Riyadh, Saudi Arabia.
- Almarai prize for the Best Research Unit - Advanced Materials Research Chair (Team Award), 2014, Almarai Company, Riyadh, Saudi Arabia.
- A fully-funded award for IUPAC conference (POC2012), Qatar Petroleum Company QAPCO, 2012, Doha, Qatar.
- Vice-rectorate for graduate studies and research prize for the excellence scientific research, 2012, King Saud University, Riyadh, Saudi Arabia.

- A fully-funded PhD. scholarship, 2008, King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia.
- The distinct and creator students prize, 2008, Hashemite University, Zarqa, Jordan.
- A fully-funded MSc. scholarship, 2005, Hashemite University, Zarqa, Jordan.

## GRANTS PROJECTS

- **Apr/2017–Now**, Co-Principle Investigator (Co-PI) of Research group no. RG-1438-0007, Deanship of Scientific Research, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (200,000 SR – 53,300 USD / per 12 months).  
Group title: Natural products chemistry and its analysis methods.
- **Jun/2017–Aug/2018**, Co-Principle Investigator (Co-PI), Project ID: DSR-NFG R-17-02-27, Ra'ed Program, Deanship of Scientific Research, King Saud University, Riyadh, Saudi Arabia (70,000 SR – 18,600 USD).  
Project title: Preparation of methacrylate based monolithic capillary columns for pharmaceutical analysis.
- **Jul/2017–Jun/2018**, Project ID: 222-S-38, Deanship of Scientific Research, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (86,200 SR – 23,000 USD).  
Project title: Determination of some bioactive coumarin compounds in two Convolvulaceae plants using UPLC/MS.
- **May/2017**, Project ID: ST/2017/014, Dae'em program, Research center, King Saud University, Riyadh, Saudi Arabia (20,000 SR – 5,300 USD).  
Project title: Determination of free fatty acids in olive oils by UHPLC–MS.
- **Aug/2016–Jul/2017**, Project ID: 178-H-37, Deanship of Scientific Research, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (109,400 SR – 29,200 USD).  
Project title: Preparation of methacrylate based monolithic capillary columns for analysis of aromatic hydrocarbon compounds in some natural samples.
- **Nov/2015–Now**, Principle Investigator (PI) of Research group no. RG-1437-011, Vice-rectorate for Graduate Studies and Scientific Research, Deanship of Scientific Research, King Saud University (150,000 SR – 40,000 USD / per 12 months).  
Group title: Chemical separation and chromatographic methods.
- **Sep/2015–Aug/2017**, Project ID: 14-ADV2447-02, National Science, Technology and Innovation Plan, King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia (1,934,560 SR – 515,800 USD).

-Recommended by American Association for the Advancement of Science (AAAS) with a total score 10.0/15.0.

Project title: Development of metal-organic framework based materials as a composite stationary phase for chromatographic applications.

• **Mar/2014–Feb/2016**, Project ID: 14-ADV931-02, National Science, Technology and Innovation Plan, King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia (1,608,700 SR – 428,900 USD).

-Highly recommended American Association for the Advancement of Science (AAAS) with a total score 12.2/15.0.

Project title: Preparation and characterization of organic polymer based monolithic columns for capillary chromatography applications.

• **Sep/2013**, Project ID: ST/2013/20, Dae'em program, Research center, King Saud University, Riyadh, Saudi Arabia (20,000 SR – 5,300 USD).

Project title: Preparation and characterization of capillary monolithic columns for liquid chromatographic applications.

• **Dec/2010**, Project ID: 3/2/163933, Vice Rectorate for Graduate Studies and Scientific Research, King Saud University, Riyadh, Saudi Arabia (25,000 SR – 6,600 USD).

Project title: Development and application of novel capillary monolithic columns for capillary chromatography.

## **SUPERVISION OF THESIS (MSc & PhD students)**

[10] MSc student **Khaleda Mosaed Alrashidi** (Student no. 437204361)

Thesis title: "Chromatographic fingerprint and the direct analysis of the major bioactive components of some medicinal plants growing in Saudi Arabia" (current student).

[9] MSc student **Raed Mansour Alafra'a** (Student no. 437106628)

Thesis title: "Chromatographic evaluation of some narcotic drugs illegally produced or seized in Saudi Arabia" (current student).

[8] PhD student **Ahmad Muidd Alammari** (Student no. 437105913)

Thesis title: "Development of high-throughput chromatographic methods for analysis of bisphenolic compounds in food using UPLC-MSMS and monolithic stationary phases" (current student).

[7] PhD student **Rabab Ali Hakami** (Student no. 435203508)

Thesis title: "Determination of pesticides residues in cereals using gas chromatography and mass spectrometry techniques" (current student).

[6] MSc student **Amjad Abdullah Altwaim** (Student no. 436203547)



Thesis title: "Fractionation, characterization and analysis of phenolic compounds in some medicinal plants growing in Saudi Arabia" (current student).

[5] MSc student **Nora Muhammad Alkatheri** (Student no. 436204034)  
Thesis title: "Application of metal-organic frameworks as stationary phase in high-performance liquid chromatography" (current student).

[4] MSc student **Tariq Aziz Alomari** (Student no. 437105789)  
Thesis title: "Assessment of trace metal contamination in three marine fishes, seagrass and macro algae from the Saudi Arabian coast of the Arabian Gulf", Dissertation defense date: 23 Apr 2018.

[3] MSc student **Soad Saad Al-Zahrani** (Student no. 434203177)  
Thesis title: "Preparation of methacrylate-based monolithic capillary columns for determination of some aromatic hydrocarbons in water", Dissertation defense date: 31 May 2017.

[2] MSc student **Mohammad Ibrahim Al-Turki** (Student no. 435107952)  
Thesis title: "Determination of BTX pollutants in water samples using capillary liquid chromatography", Dissertation defense date: 5 May 2016.

[1] MSc student **Abdullah German Al-Enezi** (Student no. 434107056)  
Thesis title: "Separation and characterization of some constituents of Arabian crude oil by gas chromatography-tandem mass spectrometry and time-of-flight mass spectrometry", Dissertation defense date: 2 Mar 2016.

## THESIS EXAMINATION COMMITTEES MEMBER

[2] MSc student **Ahmed Abdulrahman Almulla** (Student no. 431105513)  
Thesis title: "Fast determination of Xanthine compounds in tea samples by liquid chromatography techniques with spectrophotometry and mass spectrometry methods", Dissertation defense date: 27 Dec 2017. King Saud University, Riyadh, Saudi Arabia.

[1] MSc student **Raja Saad Al-Otaibi** (Student no. 432202541)  
Thesis title: "Separation and characterization of chiral constituents in essential oil extracted from Mint (*Mentha spicata* L.) by GC-MS and DART-TOF-MS", Dissertation defense date: 19 May 2016. King Saud University, Riyadh, Saudi Arabia.

## SUPERVISION OF GRADUATION PROJECTS (BSc students)

[6] **Abdullah Abdelkareem Alshomer** (Student no. 435106493)  
Project title: "Identification and determination of some phenolic compounds in *Calendula tripterocarpa* plant", second semester 2017/2018.

[5] **Nasser Musfir Alqhtani** (Student no. 434103152)  
Project title: "Montmorillonite based liquid chromatography stationary phase for drugs analysis", first semester 2017/2018.

[4] **Abdulaziz Muniir Almutairi** (Student no. 434101812)  
Project title: "Preparation of Hexylmethacrylate Monolithic Column for Gas chromatography Applications", first semester 2017/2018.

[3] **Abdullah Khalaf Al-Lohian** (Student no. 433105716)  
Project title: "Preparation of polymer-based capillary monolithic column for analysis of PAHs in water", second semester 2016/2017.

[2] **Faisal Gedaii Al-Enezi** (Student no. 431106079)  
Project title: "Development and validation of HPLC method for analysis of paracetamol and chlorzoxazone using home-made phenyl-hexyl methacrylate packed column", first semester 2016/2017.

[1] **Ahmad Mohammad Alqahtani** (Student no. 432101970)  
Project title: "Determination of aromatic hydrocarbon pollutants in water samples using capillary liquid chromatography", second semester 2015/2016.

## LIST OF PUBLICATIONS

### I. Original Articles ...

[26] Mutaz E. Salih, **Ahmad Aqel**, Babiker Y. Abdulkhair, Munir S. Obbed, Zeid A. ALOthman, Ahmed-Yacine Badjah-Hadj-Ahmed, Mohamad A. Abdulaziz, Preparation and characterization of glycidyl polymethacrylate monolith column and its application for simultaneous determination of paracetamol and chlorzoxazone in their combined pharmaceutical formulations, *Journal of Analytical Chemistry* (Accepted).

[25] Asma'a Al-Rifai, **Ahmad Aqel**, Muneera Al-Saleem, Development and validation of a rapid and efficient method for simultaneous determination of scopolin and scopoletin in *Convolvulus* species by ultra-high-performance liquid chromatography-tandem mass spectrometry, *Current Pharmaceutical Analysis* (Accepted).

[24] **Ahmad Aqel**, Soad S. Alzahrani, Asma'a Al-Rifai, Mohammed Alturkey, Kareem Yusuf, Zeid A. ALOthman, Ahmed-Yacine Badjah-Hadj-Ahmed, Determination of monoaromatic hydrocarbons in water samples by nano-liquid chromatography using a composite carbon nanotubes-lauryl polymethacrylate capillary monolithic column, *Current Analytical Chemistry* (Accepted).

[23] Mutaz E. Salih, **Ahmad Aqel**, Babiker Y. Abdulkhair, Zeid A. ALOthman, Mohamad A. Abdulaziz, Ahmed-Yacine Badjah-Hadj-Ahmed, Simultaneous determination of paracetamol and chlorzoxazone in their combined

pharmaceutical formulations by reversed-phase capillary liquid chromatography using a polymethacrylate monolithic column, *Journal of Chromatographic Science* 56 (2018) 819–827 (IF: 1.037, 2017).

[22] Munir S. Obbed, **Ahmad Aqel**, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Preparation, characterization and application of polymethacrylate-based monolithic columns for fast and efficient separation of alkanes, alcohols, alkylbenzenes and isomeric mixtures by gas chromatography, *Journal of Chromatography A* 1555 (2018) 89–99 (IF: 3.716, 2017).

[21] Asma'a Al-Rifai, **Ahmad Aqel**, Lamyah Al Wahibi, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Carbon nanotube-based benzyl polymethacrylate composite monolith as a solid phase extraction adsorbent and a stationary phase material for simultaneous extraction and analysis of polycyclic aromatic hydrocarbon in water, *Journal of Chromatography A* 1535 (2018) 17–26 (IF: 3.716, 2017).

[20] Asma'a Al-Rifai, **Ahmad Aqel**, Tarfah Al-Warhi, Saikh M. Wabaidur, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Antibacterial, antioxidant activity of ethanolic plant extracts of some *Convolvulus* species and their DART-ToF-MS profiling, *Evidence-Based Complementary and Alternative Medicine* 2017 (2017) 5694305 (IF: 1.740, 2016).

[19] **Ahmad Aqel**, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Incorporation of micro and nanoparticles in porous polymer monolithic columns for capillary liquid chromatography application (suppl), *Journal of Chromatography and Separation Techniques* 8 (2017) 43 (IF: 1.010, 2016).

[18] Kareem Yusuf, **Ahmad Aqel**, Amro Dyab, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Effect of sporopollenin microparticle incorporation into the hexyl methacrylate-based monolithic columns for capillary liquid chromatography, *Journal of Liquid Chromatography and Related Technologies* 39 (2016) 752–761 (IF: 0.630, 2015).

[17] Saikh M. Wabaidur, Ahmad AlAmmari, **Ahmad Aqel**, Saad A. AL-Tamarah, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Determination of free fatty acids in olive oils by UHPLC–MS, *Journal of Chromatography B* 1031 (2016) 109–115 (IF: 2.687, 2015).

[16] **Ahmad Aqel**, Abdulrhman M. Dhabbah, Kareem Yusuf, Nasser M. AL-Harbi, Zeid A. ALothman, Ahmed-Yacine Badjah-Hadj-Ahmed, Determination of gasoline and diesel residues on wool, silk, polyester and cotton materials by SPME-GC-MS, *Journal of Analytical Chemistry* 71 (2016) 730–736 (IF: 0.694, 2015).

- [15] Kareem Yusuf, Ahmed-Yacine Badjah-Hadj-Ahmed, **Ahmad Aqel**, Taieb Aouak, Zeid A. Al-Othman, Zeolitic imidazolate framework-methacrylate composite monolith characterization by inverse gas chromatography, *Journal of Chromatography A* 1443 (2016) 233–240 (IF: 3.926, 2015).
- [14] Kareem Yusuf, Ahmed-Yacine Badjah-Hadj-Ahmed, **Ahmad Aqel**, Zeid A. Al-Othman, A monolithic metal-organic framework MIL-53(Al)-polymethacrylate composite column for the reverse phase capillary liquid chromatography separation of small aromatics, *Journal of Separation Science* 39 (2016) 880–888 (IF: 2.741, 2015).
- [13] Kareem Yusuf, Ahmed-Yacine Badjah-Hadj-Ahmed, **Ahmad Aqel**, Zeid A. Al-Othman, Fabrication of zeolitic imidazolate framework-8-methacrylate monolith composite capillary columns for fast gas chromatographic separation of small molecules, *Journal of Chromatography A* 1406 (2015) 299–306 (IF: 4.169, 2014).
- [12] Asma'a Al-Rifai, **Ahmad Aqel**, Amani Awad, Zeid A. AlOthman, Analysis of quercetin and kaempferol in alcoholic extract of *Convolvulus pilosellifolius* using HPLC, *Communications in Soil Science and Plant Analysis* 46 (2015) 1411–1418 (IF: 0.390, 2014).
- [11] **Ahmad Aqel**, Kareem Yusuf, Zeid A. AlOthman, Ahmed-Yacine Badjah-Hadj-Ahmed, Sporopollenin microparticle-based monolithic capillary columns for liquid chromatography, *Chromatographia* 78 (2015) 481–486 (IF: 1.411, 2014).
- [10] Hessa Alshemari, **Ahmad Aqel**, Zeid A. AlOthman, Preparation of high porous poly(2-ethylhexyl methacrylate-co-ethylene glycol dimethacrylate) monolithic columns for fast separation of small molecules, *Asian Journal of Chemistry* 26 (2014) 8223–8228 (IF: 0.355, 2013).
- [9] Asma'a Al-Rifai, Amani Awaad, **Ahmad Aqel**, Bioguded fractionation and isolation of natural anti-ulcerogenic compounds and anti-*Helicobacter pylori* from *Convolvulus austroaegyptus* (suppl), *Natural Products Chemistry and Research* 2 (2014) 160 (IF: 1.70, 2016).
- [8] Abdulrhman M. Dhabbah, Sultan N. Al-Jaber, Ahmad H. Al-Ghamdi, **Ahmad Aqel**, Determination of gasoline residues on carpets by SPME-GC-MS technique, *Arabian Journal for Science and Engineering* 39 (2014) 6749–6756 (IF: 0.367, 2013).
- [7] **Ahmad Aqel**, Zeid A. AlOthman, Ahmed-Yacine Badjah-Hadj-Ahmed, Kareem Yusuf, Abdulrahman A. Alwarthan, Preparation and evaluation of benzyl methacrylate monoliths for capillary chromatography, *Journal of Chromatographic Science* 52 (2014) 201–210 (IF: 1.026, 2013).

[6] Kareem Yusuf, **Ahmad Aqel**, Zeid A. Al-Othman, Ahmed-Yacine Badjah-Hadj-Ahmed, Preparation and characterization of alkyl methacrylate-based monolithic columns for capillary gas chromatography applications, *Journal of Chromatography A* 1301 (2013) 200–208 (IF: 4.612, 2012).

[5] **Ahmad Aqel**, Kareem Yusuf, Zeid A. Al-Othman, Ahmed-Yacine Badjah-Hadj-Ahmed, Abdulrahman A. Alwarthan, Effect of multi-wall carbon nanotubes incorporation to benzyl methacrylate monolithic columns in capillary liquid chromatography, *Analyst* 137 (2012) 4309–4317 (IF: 4.230, 2011).

[4] Zeid A. Al-Othman, **Ahmad Aqel**, Muteb K.E. Al Badrani, Ahmed-Yacine Badjah-Hadj-Ahmed, Abdulrahman A. Alwarthan, Fast chromatographic determination of caffeine in food using a capillary hexyl methacrylate monolithic column, *Food Chemistry* 132 (2012) 2217–2223 (IF: 3.655, 2011).

[3] Zeid A. Al-Othman, **Ahmad Aqel**, Hadeel A. Al Abdelmoneim, Ahmed-Yacine Badjah-Hadj-Ahmed, Abdulrahman A. Alwarthan, Preparation and evaluation of long chain alkyl methacrylate monoliths for capillary chromatography, *Chromatographia* 74 (2011) 1–8 (IF: 1.075, 2010).

[2] Amjad H. El-Sheikh, Jamal A. Sweileh, Yahya S. Al-Degs, **Ahmad A. Insisi**, Nancy Al-Rabady, Critical evaluation and comparison of enrichment efficiency of multi-walled carbon nanotubes, C<sub>18</sub> silica and activated carbon towards some pesticides from environmental waters, *Talanta* 74 (2008) 1675–1680 (IF: 3.374, 2007).

[1] Amjad H. El-Sheikh, **Ahmad A. Insisi**, Jamal A. Sweileh, Effect of oxidation and dimensions of multi-walled carbon nanotubes on solid phase extraction and enrichment of some pesticides from environmental waters prior to their simultaneous determination by high performance liquid chromatography, *Journal of Chromatography A* 1164 (2007) 25–32 (IF: 3.096, 2006).

## II. Review Articles ...

[2] Kareem Yusuf, **Ahmad Aqel**, Zeid A. AlOthman, Metal organic frameworks in chromatography, *Journal of Chromatography A* 1348 (2014) 1–16 (IF: 4.612, 2013).

[1] **Ahmad Aqel**, Kholoud M. M. Abou El-Nour, Reda A. A. Ammar, Abdulrahman Alwarthan, Carbon nanotubes, science and technology part (I): structure, synthesis and characterization, *Arabian Journal of Chemistry* 5 (2012) 1–23 (IF: 1.367, 2011).

## III. Patents ...

[1] Abdulrahman Alwarthan, Ahmed-Yacine Badjah-Hadj-Ahmed, Zeid A. Al-Othman, **Ahmad Aqel**, Liquid Chromatography Device, Application number: EP12154228.6, Grant number: EP2626697B1 (European Patent Office,

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