

Dr. Ahmed O. Alnajjar
Associate Professor
Analytical Chemistry

Personal Data

Name: Dr. Ahmed O. Alnajjar
Academic Degrees: Ph.D.
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Academic Qualifications

- Ph.D. in Chemical & Pharmaceutical Analysis, *Ohio University*, USA, **2004**.
- B.Sc. in Chemistry and biology, *King Faisal University*, Saudi Arabia, **1997**.

Area of Specializations

- Pharmaceutical Analytical Chemistry
- Environmental Analytical Chemistry
- Forensic Analytical Chemistry

Research Projects and Scholarships

Research Projects:

- (1) A project entitled "Developing microchip electrophoresis and its application to drugs of abuse analysis in biofluids". It is funded by King Abdulaziz City for Science and Technology started at 01 Jan. 2011 and will end at 30 Dec. 2013 (\$200,000).
- (2) A project entitled "Developing microchip electrophoresis technology and applications to drug analysis". It is currently being funded by Deanship of Scientific Research, King Faisal University; started at 23 Jan 2010 and will end at 30 Nov. 2011 (\$53,000).

- (3) A project entitled "Developing inexpensive analytical methods for pharmaceuticals employing sequential injection chromatography". It is currently being funded by Deanship of Scientific Research, King Faisal University; started at April 2009 and will end at April 2011 (\$53,000).
- (4) A project entitled "Development of Sequential Injection Chromatography Technology, the State-of-the-Art Microfluidic Separation Technology". It is currently being funded by King Abdulaziz City for Science and Technology started at 01 Dec. 2008 and will end at 30 Nov. 2010 (\$180,000).
- (5) A project entitled "The analysis and detection of low explosives by capillary electrophoresis". It is currently being funded by the Deanship of Scientific Research, King Faisal University; started at 01 Apr. 2008 and will end at 31 Mar. 2010 (\$ 53,333).
- (6) A project entitled "Development of microfluidic devices and adoption of novel methods for drugs of abuse analysis". It is currently being funded by King Abdulaziz City for Science and Technology started at 22 Dec. 2006 and will end at 21 Dec. 2008 (\$118,000).
- (7) A project entitled "Exploitation of capillary electrophoresis technique for exploring new methods for pharmaceutical analysis". It is currently being funded by the Deanship of Scientific Research, King Faisal University; started at 01 Apr. 2006 and will end at 31 Mar. 2007 (\$ 53,000).
- (8) A project entitled "The Development of New Analytical Methods for the Analysis of Abused Drugs in Human Urine using Capillary Electrophoresis". It was funded by the Deanship of Scientific Research, King Faisal University; 2005. (\$20,000).

Scholarships:

- (9) Short-term Scholarship to visit International Forensics Research Institute at Florida International University, USA, for the purpose of conducting research. Funded by King Abdulaziz City for Science and Technology (Summer 2008).
- (10) Short-term Scholarship to visit International Forensics Research Institute at Florida International University, USA, for the purpose of conducting research. Funded by King Abdulaziz City for Science and Technology (Summer 2007)
- (11) Long-term Scholarship for the purpose of conducting Ph.D. degree from King Faisal University, Saudi Arabia to Ohio University, USA (1999 to 2004).

Professional activity, technical and teaching experience

- (1) **2009:** get a silver price from King Abdulaziz City for Science and Technology for the project title: Development of microfluidic devices and adoption of novel methods for drugs of abuse analysis.

- (2) **2009 to date:** Associate Professor at the Department of Chemistry, College of Science, King Faisal University, Saudi Arabia.
- (3) **2005 - 2008:** Assistant Professor at the Department of Chemistry, College of Science, King Faisal University, Saudi Arabia.
- (4) **1999 - 2004:** TA at the Department of Chemistry and Biochemistry, College of Arts & Science, Ohio University, USA.
- (5) **1998 - 1999:** Demonstrator at the Department of Chemistry, College of Science, King Faisal University, Saudi Arabia.
- (6) Have a total teaching experience of nine years at a university level. During this period, teaching undergraduate level laboratories and lectures courses comprising general chemistry and analytical chemistry including the following courses: General Chemistry, Classical Analytical Chemistry (Volumetric and Gravimetric) and Instrumental Chemical Analysis (Spectroscopy, Chromatography, Electrochemical analysis).
- (7) Refereed some papers for Journal of Chromatography B and Analytical Chemistry Insights.
- (8) Operating Instruments such as GC, HPLC, and CE. Also, UV-Vis, Fluorescence, IR and NMR spectrometers.

Research Publications

Ph.D. Thesis: Ahmed O. Alnajjar. Entitled "Enhancement of Sensitivity in Capillary Electrophoresis: Forensic and Pharmaceutical Applications". *Ohio University, USA 2004*.

Papers Published in Refereed Journals:

- (1) Ahmed O. Alnajjar. Sequential injection-solid phase extraction and capillary electrophoresis for the analysis of Amlodipine Besylate and Atorvastatin in Tablet formulations and human plasma. Submitted to: *Journal of Liquid Chromatography & Related Technologies 2010*.
- (2) Ahmed O. Alnajjar. Validation of a Capillary Electrophoresis Method for the Simultaneous Determination of Amlodipine Besylate and Valsartan in Pharmaceuticals and Human Plasma . Accepted in: *AOAC International 2010*.
- (3) Ahmed O. Alnajjar. Simultaneous Determination of Captopril and Indapamide in Pharmaceuticals and Human Plasma by Capillary Electrophoresis. *Chromatographia*, 68, **2008**, 437 – 442.
- (4) Abubakr M. Idris, Ahmed O. Alnajjar. Automated on-line sample treatment and quantitative determination of morphine in human urine by sequential injection analysis technique. *Talanta*, 77, **2008**, 522 – 526.

- (5) Ahmed O. Alnajjar. Sensitive method for determination of morphine and 6-acetylmorphine in human urine using capillary electrophoresis with fluorescence detection. *Acta Chromatographica* 20, **2008**, 227 – 238.
- (6) Ahmed Alnajjar and Mohamed E. El-Zaria. Synthesis and characterization of novel azo morphine derivatives for possible use in abused drugs analysis. *European Journal of Medicinal Chemistry*, 43, **2008**, 357-363.
- (7) Mohamed E. El-Zaria, Ahmed Alnajjar, Afaf R. Genady. Spectroscopic studies of charge transfer complexes of meso-tetratolylporphyrin with π -electron acceptors in different organic solvents. *Arabian Journal of Chemistry*, 1, **2008**, 9-24.
- (8) Ahmed Alnajjar, Abubakr M. Idris, Marika Multzenberg, Bruce McCord, Development of a capillary electrophoresis method for the screening of human urine for multiple drugs of abuse. *Journal of Chromatography B*, 856, **2007**, 62-67.
- (9) Ahmed O. Alnajjar, Hamed AbuSeada, Abubakr M. Idris, Capillary electrophoresis for the analysis of norfloxacin and tinidazole in pharmaceuticals with multi-response optimization. *Talanta*, 72, **2007**, 842-846.
- (10) Abubakr M. Idris, Ahmed O. Alnajjar, Multi-response optimization of a capillary electrophoresis method for the assay of vardenafil in pharmaceuticals. *Acta Chromatographica*, 19, **2007**, 97-109.
- (11) Ahmed Alnajjar, Abubakr M. Idris, Hamed Abu Seada, Development of a stability-indicating capillary electrophoresis method for norfloxacin and its inactive decarboxylated degradant. *Microchemical Journal*, 87, **2007**, 35-40.
- (12) Mohamed E. El-Zaria, Ahmed Alnajjar. Simple spectrophotometric determination of tinidazole through charge transfer complexation in pharmaceutical preparation and biological fluid. *Journal of Saudi Chemical Society*, 11, **2007**, 405-418.
- (13) Ahmed Alnajjar, Jared A. Butcher., Bruce McCord, Determination of multiple drugs of abuse in human urine using capillary electrophoresis with fluorescence detection, *Electrophoresis* 25, **2004**, 1592-1600.
- (14) Ahmed Alnajjar, Bruce McCord, Determination of heroin metabolites in human urine using capillary zone electrophoresis with β -cyclodextrin and UV detection. *Journal of Pharmaceutical and Biomedical Analysis*, 33, **2003**, 463-473.

International Conference Papers:

- (1) Abubakr M. Idris, Alnajjar O. Ahmed, Rafea E.E. Elgorashe. Experimental guidelines on developing sequential injection chromatographic methodology. *16th International Conference on Flow Injection Analysis Including Related Techniques*. Pattaya, **Thailand 2010**.
- (2)

- (3) Ahmed Alnajjar and Abubakr M. Idris. Microchip electrophoresis with fluorescence detection for the separation and determination of heroin metabolites. *35th International Symposium on High-Performance Liquid Phase Separations and Related Techniques (HPLC 2010)*, Boston, Massachusetts, **USA 2010**.
- (4) Abubakr M. Idris, Alnajjar O. Ahmed, Rafea E.E. Elgorashe. Experimental guidelines on developing sequential injection chromatographic methodology. *16th International Conference on Flow Injection Analysis Including Related Techniques*. Pattaya, **Thailand 2010**.
- (5) Ahmed O. Alnajjar. Developing microchip Electrophoresis biotechnology and its application to drugs of abuse analysis. *Microscopy & Microanalysis*, Richmond, Virginia, **USA 2009**.
- (6) Ahmed Alnajjar and Abubakr M. Idris. Microchip electrophoresis with laser induced fluorescence detection for the separation and determination of some drugs of abuse in biological fluids. *34th International Symposium on High-Performance Liquid Phase Separations and Related Techniques (HPLC 2009)*, Dresden, **Germany 2009**.
- (7) Abubakr M. Idris, Ahmed O. Alnajjar, Chemometrics, a Powerful Tool for Optimizing Flow Injection Analytical Methods, *Euroanalysis Conference*, Innsbruck, **Austria 2009**.
- (8) Ahmed Alnajjar and Abubakr M. Idris. Automated sample treatment and fluorescence derivatization by sequential injection for the determination of amphetamines in biological fluids by capillary electrophoresis. *BioChromatography and Nanoseparation International Symposium*, Montpellier, **France 2008**.
- (9) Abubakr M. Idris and Ahmed Alnajjar. What did will flow injection techniques provide for pharmaceutical, pharmacological and toxicological analysis? *The 68th Inter. Congress of Pharmacy and Pharmaceutical Sciences (FIP)*, **Switzerland 2008**.
- (10) Ahmed Alnajjar. Sequential injection-solid-phase extraction for sensitivity enhancement in capillary electrophoresis: Application to abused drugs analysis in human urine. *International Conference on Flow Injection Analysis*, **Germany 2007**.
- (11) Abubakr M. Idris and Ahmed Alnajjar. Sequential injection Analysis Technique for on-line Sample Treatment and Determination of Total Morphine in Human Urine. *International Conference on Flow Injection Analysis*, **Germany 2007**.
- (12) Ahmed Alnajjar. Capillary Electrophoresis for drugs analysis. *57th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*, Orlando, FL, **USA 2006**.

- (13) Ahmed Alnajjar. Capillary Electrophoresis with Fluorescence Detection for Abuse Drugs Analysis. *Federation of Analytical Chemistry and Spectroscopy Societies*, Quebec City, **Canada 2005**.
- (14) Ahmed Alnajjar and Bruce McCord. Determination of heroin metabolites in human urine using capillary electrophoresis with laser-induced fluorescence detection. *Federation of Analytical Chemistry and Spectroscopy Societies*. Florida, **USA 2003**.
- (15) Ahmed Alnajjar and Bruce McCord. Determination of heroin using capillary electrophoresis coupled with UV and fluorescence detection. *American Academy of Forensic Science*, Atlanta, Georgia, **USA 2002**.