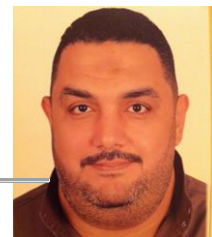


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An accomplished & knowledgeable professional aiming for excellence in chemistry teaching and research.

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ACADEMIC CREDENTIALS

- **Ph.D.** (Chemistry) from King Fahd University of Petroleum and Minerals with GPA: 3.8/4 in 2001
- **M.Sc.** (Computational Chemistry) from King Fahd University of Petroleum and Minerals with (GPA: 3.7/4) in 1997
- **B.Sc.** (Chemistry) from Faculty of Science, Mansoura University (Dist. with a very good grade) in 1992

Working EXPERIENCE

**March'18 – Now: Assistant Professor,
Northern Border University, Arar
College of Science, Chemistry Department.**
Research and teaching of undergraduate courses lecture & lab

**Feb'06 – to Sept 2016: Afia International Company
Jeddah**
*Feb'06 – Nov'06: Supply Chain Capabilities Developments Manager
Dec'06 – Dec'08: Dept. Manager -Process Control
Jan'09 – Dec'13: Dept. Manager - Process Control, Harbor & Oil
Logistics
Jan'14 – Sept 16: Plant operations manager*

**Sep'01 – Jan'06: Research Associate.
King Fahd University of Petroleum & Minerals**
Research and teaching of undergraduate courses lecture & lab

**1997 – 2001: Lecturer-B
King Fahd University of Petroleum & Minerals**
Teaching & studying for my PhD degree

**1995 – 1997: Research Assistant
King Fahd University of Petroleum & Minerals as**
Teaching & studying for M.Sc. degree

**1993 – 1994: Research Assistant
Faculty of Science, Mansoura University as**

SKILLS SET	PROFILE SUMMARY
<p>Teaching</p> <p>Research & Development</p> <p>TQM (lean manufacturing)</p> <p>Quality Assurance & Control</p> <p>Manufacturing Operations</p> <p>Process Enhancement</p> <p>Chemical analysis</p> <p>Cost Control</p> <p>Team Management</p>	<ul style="list-style-type: none"> ❖ A competent professional with 16 years of experience in Academic teaching & research, Quality Assurance & Control, Process Improvements, and Lean Manufacturing ❖ Computational Chemistry and chemical reactions modelling ❖ Experience in interpreting data from various spectrophotometers e.g. Uv-Vis, IR, Fluorescence and Pico-second Laser spectrophotometer ❖ An effective communicator with good analytical, leadership, interpersonal, planning and problem-solving skills ❖ Proficient in developing & streamlining systems with proven ability to enhance operational effectiveness and meet operational goals within the cost, time & quality parameters ❖ Skilled in providing support to QA, Operations & plant management teams to implement food safety and QMS like AIB, ISO 9001 & ISO 22000 ❖ Possess a clear understanding of industry, technology trends with distinction of instituting quality control techniques to achieve excellence at the lowest overall costs ❖ Instrumental in process operation optimization & GMP

TEACHING ASSIGNMENTS

Efficiently taught lectures, Labs and recitations of the following courses:

- Electrochemistry, NBU
- Photochemistry, NBU
- Chemical Kinetics, NBU
- Experimental Physical Chemistry, NBU
- Quantum Chemistry, NBU
- Corrosion Chemistry, NBU
- Chemical Industries, NBU.
- Solid state and surface chemistry
- Catalysis
- Pharmaceutical Analytical Chemistry, NBU

- Pharmaceutical Organic Chemistry I,
- Pharmaceutical Organic Chemistry II, NBU
- Pharmaceutical Quality Control, NBU
- General Chemistry (Chem 101) KFUPM
- General Chemistry (Chem 102) KFUPM

PROFESSIONAL ENHANCEMENTS

Successfully completed full training course on:

- Computer for Chemists, Short Course, Chemistry Department, KFUPM, 1996
- Introduction to UNIX, Short Course, Information Technology Center, KFUPM, 1997
- Instructional Technology, Workshop, Academic Development Center, KFUPM, November 4-8, 2000
- How to be an Effective University Teacher, Workshop, Academic Development Center, KFUPM, September 7-8, 2002
- Increasing Effectiveness as a University Teacher, Workshop, Academic Development Center, KFUPM, September 9-11, 2002
- “Total Quality Management, TQM” at the King Fahd university of Petroleum and Minerals
- OHSAS 18000 and was qualified as an OHSAS & HACCP Internal Auditor
- ISO 22000:2005 (Food Safety Management Systems) and was qualified as an Internal Auditor
- ISO 14001 and was qualified as an internal “Environmental Management Systems EMS” Auditor
- “Managing Multiple Tasks”
- “Managing People Concepts”
- “Train the trainers” - A Certified Trainer
- “Total Production Maintenance” TPM Training
- “Change Management” Training Course held at Bahrain, July 2006

THESIS

Successfully completed thesis on:

- “Study of the Photochemical Properties of Some Organic Compounds on Molecular Sieves by using a Pico-second Pulse Laser System” during Ph.D.
- “Conformational Stability and Barrier to Internal Rotation in Some Unsaturated Hydrocarbons Based on AB Initio Calculations” during M.Sc.

KNOWLEDGE PURVIEW

Well versed with:

- Catalysts Characterization using Laser induced fluorescence spectroscopy

- Analysis of food additives and contaminants using different spectroscopic and chromatographic methods of analysis
 - Dynamics of the excited state proton transfer reactions
 - Computational Chemistry and chemical reactions modelling
- Sound knowledge of:
- Solid catalyst properties like acidity & polarity by inclusion of a probe molecule into catalyst channels & cages and measuring its fluorescence and excited state lifetime
 - Analysis and identification of compounds using GC, GC-MS and HPLC and many other spectroscopic methods
 - Computational Studies on ground & excited states of chemical reactions

CORE COMPETENCIES

- Conducting chemical analysis and identifying materials using GC, GC-MS & HPLC and using many other spectroscopic techniques, (UV-Vis, FT-IR, Fluorescence, atomic absorption,)
- Managing day-to-day operations with a talent for formulations, quality assurance and QMS implementation in line with industry best practices
- Undertaking HACCP & quality systems implementation and ensuring improvements in the refineries & production sections
- Establishing an acidity & polarity scale for solid catalysts based on the lifetimes of an adsorbed probe molecule
- Managing & leading teams for running successful operations for achieving manufacturing excellence
- Implementing cost saving measures to develop manpower skills, safety measures and ensuring compliance of various quality measures
- Responsible for the factory - industrial waste disposal & management
- Developing new process concepts for production optimization, yield improvement and developing guidelines for the sequencing of manufacturing activities
- Focusing on the optimization of process parameters & initiating process improvements for achieving productivity targets

PERSONAL DETAILS

Date of Birth: 9th January, 1970
Present Address: EL-Mattaria-Dakhlia, Azzam Street, Egypt
Permanent Address: EL-Mattaria-Dakhlia, Azzam Street, Egypt

Language Known: Arabic & English
Passport No.: A 13203370 (Expiry Date: 22/9/2021)

Please refer Annexure for other details

ANNEXURE

LIST OF PUBLICATIONS

- 1) Nasrul Wathoni, Salsa Sagitasa, Sri B. Putri, Miada F. Abdelwahab, Ahmed F. Mohammed, **Ali El-Rayyes**, Cecep Suhandi, Felix Zuhendri, " Antioxidant Effectiveness of Propolis: A Systematic Review and Meta-Analysis ", **Frontiers in Pharmacology, 2023, submitted**
- 2) Safwat A. Mahmoud, **Ali El-Rayyes**, Shahend Sh. Ahmed, Mohamed S. Attia "Procalcitonin Assessment by using a Nano Optical Sensor Terbium Hydrochlorothiazide Complex for Early Diagnosis of Lung Cancer" *Analytica Chimica Acta, 2023, submitted.*
- 3) Yunusa Umar and **Ali A. El-Rayyes** " Theoretical investigation of the Vibrational and Electronic properties of tetraphenylammonium and its boron, aluminium, gallium, carbon, silicon, germane, phosphorus and arsenic analogues ", *Journal of molecular liquids, submitted 27/2/2023*
- 4) **Ali El-Rayyes**, Ehab Abdel-Latif, Mohammed H. Abdel-Rahman, Roaa T. Mogharbel, "Molecular geometry and biological activity of 2-(4-substituted phenylimino) thiazolidin-4-one compounds", *Bull. Chem. Soc. Ethiop., 2023, 37(5), 000-000.*
- 5) Altaf Saleh, Ali Saeed, Ghada E. Abdel-Ghani, **Ali El-Rayyes**, Ehab Abdel-Latif, "synthesis of some new antipyrene-thiophene hybrids and evaluating their antioxidant and antibacterial activities", **Bull. Chem. Soc. Ethiop. 2023, 37(1).**
- 6) Altaf S. Almatari, Ali Saeed, Ghada E. Abdel-Ghani, **Ali El-Rayyes**, Ehab Abdel-Latif, "Synthesis of some new thiophene, thienyl-thiazole and thienyl-benzofuran analogues and evaluation of their anticancer activity. **Journal of Heterocyclic Chemistry, 2023;1–13.**
- 7) Mohamed R. Elmorsy, Safa A. Badawy, Abdullah Y. A. Alzahrani and **Ali El-Rayyes**, "Molecular design and synthesis of acetohydrasonoyl cyanide structures as efficient dye-sensitized solar cells with enhancement of the performance of the standard N-719 dye upon co-sensitization", **Optical Materials, 135 (2023) 113359.** <https://doi.org/10.1016/j.optmat.2022.113359>
- 8) **Ali El-Rayyes**, Ehab Abdel-Latif, Ahbarah M. Soliman, and Ali Saeed "Synthesis and Anticancer Evaluation of New Thiazole and Thiadiazole Derivatives Bearing Acetanilide Moiety", **Russian Journal of General Chemistry, 2022, Vol. 92, No. 10, pp. 1–13.**
- 9) **Ali El-Rayyes** and Mohamed R. Elmorsy, "New 3-aryl-2-cyano-acrylohydrazide compounds as effective sensitizers for dye-sensitized solar cells: Photovoltaic performance over the standard dye N719 upon co-sensitization", **Optical Materials 132 (2022) 112866,** [https://doi.org/10.1016/j.optmat.2022.112866.](https://doi.org/10.1016/j.optmat.2022.112866)
- 10) **Ali A. El-Rayyes** and Yunusa Umar " Theoretical study on intramolecular hydrogen bonding and proton transfer reactions in 8-hydroxy-1-naphthaldehyde", *Bulletin of the Korean Chemical Society, 42, (2021), 1310–1318 DOI: 10.1002/bkcs.12367*

- 11) I. H. El Azab, H. Kh. Thabet, Sh. A. Almotairi , M.G.A. Saleh , R.T. Mogharbel , S.A. Mahmoud , A .A . El-Rayyes, A. Ibrahim, M. Sh. Zoromba , M.H. Abdel–Aziz , S.M. Ibrahim , A.F. Al-Hossainy " Novel Synthesis and High Performance of a novel nanocomposite of coumarin thin film with [ZrO₂]^{NPs} and its application", **J. Mol. Struct.**, **1241 (2021) 130640**.
<https://doi.org/10.1016/j.molstruc.2021.130640>
- 12) **El-Rayyes, A.** Al-Betar, T. H. Maung, and Uwe K. A. Klein*. "Fluorescence emission from Rhodamine-B Lactone adsorbed at solid catalysts" *Chem. Phys. Lett.*, 414(2005)287-291.
- 13) **Ali A. El-Rayyes***, Yunusa Umar "Density Functional Theoretical studies on Structures and Vibrational Spectra of Fluorovinyl Silanimines" *The Canadian Journal of Analytical Sciences and Spectroscopy (CJASS)*, 50(2005)175-189.
- 14) **Ali A. El-Rayyes**, T. H. Maung*. "Excited state Phototautomerization of 8-amino-1-naphthol-3, 6-disulfonate in polar and acidic solutions" *The Canadian Journal of Analytical Sciences and Spectroscopy (CJASS)*, 50(2005)111-118. (WOS:000202944700007)
- 15) Al-Betar, **A. El-Rayyes** and Uwe K. A. Klein*. "Ground and Excited states proton transfer reactions of 1, 8-diaminonaphthalene in Perchloric acid solutions" *J. Fluorescence*. 15(2005)689-696.
- 16) **Ali A. El-Rayyes**, Klein, Uwe K. "Acidity Characterization of Tungstophosphoric Acid by using Laser Induced Fluorescence Spectroscopy" *Chem. Phys. Lett.*, 397 (2004) 484-487.
- 17) Mohamed I. M. Wazeer*, Anvarhusein A. Isab and **Ali El-Rayyes**, "Solid state NMR study of 1,3 –imidazolidine-2-thione, 1,3-imidazolidine – 2-selenone and some of their N-substituted derivatives" *Spectroscopy*, 18 (2004) 113-119.
- 18) **Ali A. El-Rayyes**, A. Al-Arfaj, Klein, Uwe K. A., Barri, S.A.I* "Acidity of all-silica MCM-41 - studied by laser spectroscopy of adsorbed fluorescent probe compounds" *Catal. Lett.* 97 (2004) 83-90.
- 19) **Ali A. El-Rayyes**, T. H. Maung* "Solvents effect on the Photophysical Properties of 2-anilinonaphthalene" *Spectrochim Acta Part A.*, 60 (2004) 1985-1989.
- 20) **Ali A. El-Rayyes***, T. H. Maung. "Theoretical studies on the structure and hydrogen bonding of 8-amino-1-naphthol and its one water complex" *J. Mol. Struct. THEOCHEM*, 681 (2004) 9-13.
- 21) **Ali. A. El-Rayyes*** "Theoretical Studies on the Geometrical Structures and Vibrational Spectra of N-hydroxy-1-vinylsilanimines" *J. Mol. Struct. (Theochem)*, 624(2003)181-190.
- 22) **Ali. A. El-Rayyes*** "Structure and vibrational assignments of the various modes of Nitro-, Nitrozo- and Aminosilanimines" *J. Mol. Struct. (Theochem)*, 634(2003)289-298.
- 23) **Ali A. El-Rayyes**, H.P. Perzanowski, Klein, Uwe K. A., Barri, S. A. I*. "Acidity of zeolite Y-Probed by adsorption of 1-Naphthylamine and studied by laser-induced fluorescence spectroscopy" *Catal. Lett.*, vol 78, 161(2002).
- 24) **Ali. A. El-Rayyes*** "Ab initio and Density Functional Theoretical Studies of Structures and Vibrational Spectra of Simple Silanimines" *J. Mol. Struct. (Theochem)*, 617(2002)17-29.

- 25) H. M. Badawi & **Ali. A. El-Rayyes** "Vibrational Spectra and Potential Energy Distributions of Normal Modes of 3-Nitroso- and 3-Nitrocyclopropene" J. Mol. Struct. (Theochem), 588(2002)17-27.
- 26) **Ali. A. El-Rayyes**, H.P. Perzanowski, Barri, S. A. I., Klein, Uwe K. A*. "New Insight Into The Excited State Proton Transfer Reactions Of 1-Naphthylamine In Solution" J. Phys. Chem. A., Vol 105, 10169(2001).
- 27) H. M. Badawi, **Ali. A. Al-Rayyes** "An Ab Initio Calculations of Barrier to Internal Rotation in 3-Methyl-3-Cyclopropenecarboxaldehyde and 3-Methyl-3-Cyclopropenecarboxylic Acid Fluoride" Arab. J. Sc. Eng., Vol. 24A, 59(1999).
- 28) H. M. Badawi*, and **Ali. A. Al-Rayyes** "An Ab Initio Study of the Effect of solvent on energies and Rotational Barrier In 2,3-butadienal and 2,3-butadienoyl Fluoride and Chloride" J. Mol. Struct. (Theochem) Vol. 428, 247(1998).
- 29) H. M. Badawi, W. Forner & **Ali. A. Al-Rayyes** "An Investigation of Structural Stability and Internal Rotation in 3-Cyclopropenecarboxaldehyde and 3-Cyclopropenecarboxylic Acid Fluoride by Ab Initio Calculation" J. Mol. Model. Vol. 4, 158 (1998).
- 30) H. M. Badawi & **Ali. A. Al-Rayyes** "Rotational Barrier in 3-Butynal and 3-Butynoyl Fluoride and Chloride Based on Ab Initio Calculations" J. Mol. Struct. (Theochem) Vol. 397, 51(1997).
- 31) H. M. Badawi*, **Ali. A. Al-Rayyes** and C. P. Tsonis, "An Ab Initio Study of Structural Stability of Poly (Phenylacetylene) Dimers and Trimers" J. Mol. Struct. (Theochem) Vol. 394, 49 (1997).

CONFERENCE PAPERS

- M. I. M. Wazeer, A. A. Isab, A. El Rayyes, H. P. Perzanowski, "Solid-state NMR studies and Molecular Computations of 1, 3 imidazolidine-2-thione, 1, 3-imidazolidine-2-selenone and some related compounds", *2nd Saudi Science conference*, Jeddah. March 2004

FUNDED RESEARCH PROJECTS

Project #SAB-2002/05

- "Quality Tests of Widely Used Vegetable Oils in Saudi Arabia by different electron spectroscopy techniques", M.A. Morsy (PI) and Ali El-Rayyes (CoI) (Dec 2002-Dec. 2003); Final report is submitted & approved (with evaluation of Excellent)

Project #SAB-2003/05

- "Photochemical Studies on 8-Amino-1-Naphthol-3, 6-Disulfonate by Fluorescence Spectroscopy" by Than Htun (PI) and Ali El-Rayyes (CoI) (April 2003-April. 2004); Final report is submitted and approved (with evaluation of Excellent)

Project #SAB-2004/16

- "Acidity Characterization of Solid Acids by Using the Excited State Proton Transfer Reactions of Aromatic Amines" by Ali El-Rayyes (PI), (june 2004-Nov. 2005); Final report is submitted and approved (with evaluation of Excellent)

DISSERTATION ABSTRACT

Abstract: Proton transfer reaction from excited state of 1-naphthylamine (RNH_2) has been investigated in aqueous solutions of different acidity. Fluorescence from a new species was recorded. The quenching constants of: RNH_2^* , RNH_3^+ & new species and some rate constants are evaluated by means of steady-state fluorescence and picosecond fluorescence decay measurements. The structure of the new emitting species was proposed to be an adduct formed from RNH_3^+ and an unhydrated ClO_4^- anion. A theoretical model for the hydration of protons was presented. The formation of the new species was found to be in linear relationship to the presence of un-hydrated acid molecules.

The results of study were used to characterize the acidity in zeolite Y & MCM-41 catalysts. Both fluorescence emission & fluorescence decay profile of RNH_2 adsorbed at catalyst surfaces reflect high acidic environment experienced by the amine at the surfaces of the catalyst. For zeolite Y, acidity was found to be equivalent to that in 3 M acid and increases up to 17 M by increasing the percent protonation in the catalyst. For MCM-41, the pH of the surface silanol groups was found to vary from pH 1.8 to pH 2.5. Kinetic models for the proton transfer reaction occurring at the catalyst surfaces was proposed and both fluorescence & deactivation rate constants are determined. Furthermore, the polarity of surfaces of these catalysts is probed using 2-anilinonaphthalene (2-AN) and rhodamine b lactone (RBL). The results show that the catalyst surfaces are highly polar. The polarity could be comparable to that of an alcohol. For zeolite Y, polarity increases upon protonation. A new fluorescence emission band from RBL adsorbed at the zeolite Y surfaces was determined. This emission band is due to a dimer formation at the catalyst surfaces. This band was not formed in solutions due to solvation effects. To our knowledge, this was first time to characterize the surface properties using laser induced fluorescence techniques and to study excited-state proton transfer reactions at the surfaces of zeolite Y and MCM-41 materials.

REFERENCES**Prof.Safwat AbdulHalim Mahmoud**

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