



Curriculum Vitae

Ali Hossein Rezayan

Ph.D. in Organic Chemistry

Assistant professor at Tehran University

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1. Personal Details
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1. Personal Details

Name: Ali Hossein

Surname: Rezayan

Date of birth: 8, Sep. 1979

Place of birth: Kalibar County (East Azarbaijan), Iran

Marital status: Married

Nationality: Iranian

Language: Turkish (maternal language), Persian (National Language, writing, reading, speaking) and English (writing, reading, speaking)

2. Education

B.Sc. in Pure Chemistry

Azarbaijan Teacher Training University, Tabriz, Iran, (September 2003).

M.Sc. in Organic Chemistry

Shahid Beheshti University, Tehran, Iran (Supervisor Prof. Ahmad Shaabani) (September 2005).

Thesis:

- (1) Oxidation of sulfides to sulfoxides or sulfones with hydrogen peroxide in the presence of silica sulfuric acid at room temperature
- (2) Synthesis of metallophthalocyanines in tetramethylguanidinium trifluoroacetate under classical heating conditions and microwave irradiation

Ph.D. in Organic Chemistry

Shahid Beheshti University, Tehran, Iran (Supervisor Prof. Ahmad Shaabani) (January 2010).

Thesis: Synthesis of 3,4-dihydrocoumarins and 1,5-benzodiazepines via Meldrum's acid and isocyanide based multicomponent reactions

3. Research Interests

- (1) Design and synthesis of polymeric systems for controlled drug release
- (2) Surface modification and functionalization of nanoparticles (magnetic, gold, etc.) and conjugation with ligands (markers) to detect and treat
- (3) Design and synthesis of modified nanoparticles (magnetic, ...) for environmental applications
- (4) Synthesis and application of Nano-catalysts for oxidation of organic compounds

4. Awards

- (1) Distinguished student of Shahid Beheshti University 2009
- (2) Distinguished Student of Iran Universities 2010
- (3) Best Lecturer in Organic Chemistry Conference in 2009
- (4) Members of the Young Researchers and Elite Club
- (5) Members of the Iranian Chemical and Chemical Engineering Society

5. Papers Published in International Journals

- 1) Ali Hossein Rezayan, Hossein Sabahi, Abbas Rahmati, Ali Maleki, "Synthesis of a new class of tetronic acid derivatives: a one-pot three-component condensation reaction between isoquinoline or pyridine and dialkyl acetylenedicarboxylate with tetronic acid" *Monatshefte fur Chemie-Chemical Monthly* **2013**, *144*, 1051-1055.
- 2) Abbas Rahmati, Ali Hossein Rezayan, Meysam Alizadeh, Ali Nikbakht "A mild and green chemistry approach for the synthesis of novel symmetrical spirooxindole derivatives" *Journal of the Iranian Chemical Society* **2013**, *10*, 521-525.
- 3) Hossein Sabahi, Ali Hossein Rezayan "Nitrogen turnover of legume seed meals as affected by seed meal quality and stage of decomposition at low temperatures" *Communication in Soil Science and plant Analysis* **2013**, Accepted
- 4) Samaneh Feizi, Ali Hossein Rezayan, Soroush Sardari, Parisa Azerang "Synthesis and biological evaluation of new thiosemicarbazide derivatives endowed with high activity toward *Mycobacterium bovis* (BCG)" *Medicinal Chemistry Research* **2013**, Accepted
- 5) Abbas Rahmati, Ali Hossein Rezayan, Mehdi Ahmadi-Varzaneh "A novel one-pot four- or pseudo-five-component condensation reactions: a new approach for the synthesis of [1,5]benzodiazepine and malonamide derivatives" Submitted to *Tetrahedron* **2013**
- 6) Mehdi Shakourian-Fard, Ali Hossein Rezayan, Mohammad Mahmoodi Hashemi "Ionic liquids functionalized Fe₃O₄ nanoparticles as a new and recoverable catalyst for the synthesis of α -aminophosphonates" Submitted **2013**
- 7) Safoura Hariri, Ali Hossein Rezayan, Soroush Sardari "Synthesis and *in vitro* evaluation of fluoren bisamide derivatives as Inhibitors of *Mycobacterium bovis* (BCG)" Submitted to *Chemical Biology & Drug Design* **2013**
- 8) Ahmad Shaabani, Rahim Ghadari, Ali Hossein Rezayan, "Triphenylphosphine mediated synthesis of functionalized coumarins" Submitted to *Chemical Pharmaceutical Bulletin* **2013**
- 9) Ahmad Shaabani, Rahim Ghadari, Sabrieh Ghasemi, Milad Pedarpour, Ali Hossein Rezayan, Afshin Sarvary "Domino based strategy for the synthesis of highly valuable and functionalized pyrimidine-2,4-dione-, benzo[g]-, and dihydropyrano[2,3-g]chromene derivatives" Submitted to *Journal of combinatorial Chemistry* **2013**
- 10) Ali Hossein Rezayan "Stereoselective synthesis of 3,4-dihydro-7-nitrocoumarins via isocyanide-based multicomponent reaction" *Comptes rendus chimie* **2012**, *15*, 499–503.
- 11) Ali Hossein Rezayan, Parisa Azarang, Soroush Sardari, Afshin Sarvary "Synthesis and Biological Evaluation of Coumarin Derivatives as Inhibitors of *Mycobacterium bovis* (BCG)" *Chemical Biology & Drug Design* **2012**, *80*, 929-936.
- 12) Parisa Azerang, Ali Hossein Rezayan, Soroush Sardari, Farzad Kobarfard, Mitra Bayat, "Synthesis and biological evaluation of propargyl acetate derivatives as anti-mycobacterial agent" *DARU Journal of Pharmaceutical Sciences* **2012**, *20*:90 (doi:10.1186/2008-2231-20-90)
- 13) Samaneh Feizi, Ali Hossein Rezayan, Soroush Sardari, Behrouz Notashc " (E)-1-(2-Nitrobenzylidene)-4-phenylthio-semicarbazide" *Acta Crystallographica Section E* **2012**, *E68*, o2154.
- 14) Ahmad Shaabani, Rahim Ghadari, Ali Hossein Rezayan, "Synthesis of Functionalized Coumarins" *Iran. J. Chem. Chem. Eng.* **2011**, *30*, 17-20.

- 15) Ahmad Shaabani, Afshin Sarvary, Sabrieh Ghasemi, **Ali Hossein Rezayan**, Rahim Ghadari and Seik Weng Ng "An environmentally benign approach for the synthesis of bifunctional sulfonamide-amide compounds *via* isocyanide-based multicomponent reactions" **Green Chemistry** **2011**, 13, 582-585.
- 16) Ahmad Shaabani, Abbas Rahmati, **Ali Hossein Rezayan** "A stereoselective three-component reaction: the facile synthesis of a novel class of fluorinated (7,8*H*)benzothiazolo[3,2-*a*]pyrimidines" **Journal of the Iranian Chemical Society** **2011**, 8, 24-30.
- 17) Ahmad Shaabani, Ali Maleki, **Ali Hossein Rezayan**, Afshin Sarvary, "Recent progress of isocyanide-based multicomponent reaction in Iran" **Molecular Diversity** **2011**, 15, 41-68.
- 18) Ahmad Shaabani, **Ali Hossein Rezayan**, Afshin Sarvary, Sajjad Keshipour and Hamid Reza Khavasi "An unexpected coupling reaction between isocyanides and carboxylic acids: a method for the synthesis of highly stable symmetrical and unsymmetrical alkylamidine and arylamidine carbocations" **Tetrahedron Letters** **2010**, 51, 4091-4094.
- 19) Ahmad Shaabani, Afshin Sarvary, Sajjad Keshipour, **Ali Hossein Rezayan**, Rahim Ghadari, "Knoevenagel self-condensation reaction of tetronic acid in the presence of *tert*-amine: synthesis of organic nitrogen heterocyclic salts" **Tetrahedron** **2010**, 66, 1911-1914.
- 20) Ahmad Shaabani, Mostafa M. Amini, Sabrieh Ghasemi, **Ali Hossein Rezayan**, Yousef Fazaeli and Rahim Ghadari "Pyridine-functionalized MCM-41 as an efficient and recoverable catalyst for the synthesis of pyran annulated heterocyclic systems" **Chemical Pharmaceutical Bulletin** **2010**, 58, 270-272.
- 21) Ahmad Shaabani, **Ali Hossein Rezayan**, Ebrahim Soleimani, Afshin Sarvary, Ali Maleki "Tin(II) chloride dihydrate catalyzed Groebke condensation: An efficient protocol for the synthesis of 3-aminoimidazo[1,2-*a*]pyridines and pyrazines" **Chinese Journal of Chemistry**, **2009**, 27, 369-371.
- 22) Ahmad Shaabani, **Ali Hossein Rezayan**, Sabrieh Ghasemi, Afshin Sarvary "A mild and efficient method for the synthesis of 2,5-dihydro-2-methylfuran-3,4-dicarboxylate derivatives *via* an isocyanide based multicomponent reaction" **Tetrahedron Letters** **2009**, 50, 1456-1458.
- 23) Ahmad Shaabani, Afshin Sarvary, **Ali Hossein Rezayan**, Sajad Keshipour "Synthesis of pyrano[2, 3-*c*]pyrazole derivatives *via* a multicomponent reaction of isocyanides" Submitted to **Tetrahedron** **2009**, 65, 3492-3495.
- 24) Ahmad Shaabani, Maryam Behnam, **Ali Hossein Rezayan** "Tungstophosphoric acid (H₃PW₁₂O₄₀) catalysis in selective oxidation of organic compounds with NaBrO₃" **Catalysis Communications**, **2009**, 10, 1074-1078.
- 25) Ahmad Shaabani, Rahim Ghadari, Afshin Sarvary, **Ali Hossein Rezayan** "A simple and efficient method for the synthesis of highly functionalized bis(4*H*-chromene-) and 4*H*-benzo[*g*]chromene derivatives *via* an isocyanide based multicomponent reaction" **J. Org. Chem.**, **2009**, 74, 4372-4374.
- 26) Ahmad Shaabani, **Ali Hossein Rezayan**, Afshin Sarvary, Marjan Heidary, Seik Weng Ng "Synthesis charge separated pyridinium-, isoquinolinium-, quinolinium-, and *N*-methylimidazolium-tetronic acid zwitterions" **Tetrahedron** **2009**, 65, 6063-6068.
- 27) Ahmad Shaabani, **Ali Hossein Rezayan**, Sajjad Keshipour, Afshin Sarvary, Seik Weng Ng "A Novel One-Pot Three-(*in Situ* Five-) Component Condensation Reaction: An Unexpected Approach for the Synthesis of Tetrahydro-2,4-dioxo-1*H*-benzo[*b*][1,5]diazepine-3-yl-2-methylpropanamide Derivatives" **Organic Letters** **2009**, 11,

3342-3345.

- 28) Ahmad Shaabani, Rahim Ghadari, Sabrieh Ghasemi, Milad Pedarpour, **Ali Hossein Rezayan**, Afshin Sarvary and Seik Weng Ng "Introduction of novel three- and *pseudo*-five multicomponent reactions: synthesis of functionalized benzo[*g*]- and tetrahydropyrano[2,3-*g*]chromene derivatives" *Journal of combinatorial Chemistry*, **2009**, *11*, 956–959.
- 29) Ahmad Shaabani, Rahim Ghadari, Abbas Rahmati, **Ali Hossein Rezayan** "Coumarin Synthesis via Knoevenagel Condensation Reaction in 1,1,3,3-*N,N,N',N'*-Tetramethylguanidinium Trifluoroacetate Ionic Liquid" *Journal of the Iranian Chemical Society* **2009**, *6*, 710-714.
- 30) Ahmad Shaabani, **Ali Hossein Rezayan**, Maryam Behnam, Marjan Heidary "Green chemistry approaches for the synthesis of quinoxaline derivatives: comparison of ethanol and water in the presence of reusable catalyst cellulose sulfuric acid" *Comptes rendus Chimie* **2009**, *12*, 1249–1252.
- 31) Ahmad Shaabani, **Ali Hossein Rezayan**, Afshin Sarvary, Abbas Rahmati, "Isocyanide catalyzed reaction of tetracyanoethylene and activated 1,3-dicarbonyl CH-acid compounds: A rapid and efficient synthesis of pyran annulated heterocyclic systems" *Synthetic Communications* **2008**, *38*, 274-281.
- 32) Ahmad Shaabani, **Ali Hossein Rezayan**, Afshin Sarvary, Hamid Reza Khavasi "A novel pyridine-based three-component condensation reaction: synthesis of highly substituted quinolizine" *Tetrahedron Letters* **2008**, *49*, 1469-1472.
- 33) Ahmad Shaabani, **Ali Hossein Rezayan**, Afshin Sarvary, Abbas Rahmati "Pyridine catalyzed reaction of tetracyanoethylene and activated 1,3-dicarbonyl CH-acid compounds: A rapid and efficient synthesis of pyran annulated heterocyclic systems" *Catalysis Communications* **2008**, *9*, 1082–1086.
- 34) Ahmad Shaabani, Naser Safari, Samad Shoghpour, **Ali Hossein Rezayan** "Silica-Supported Cobalt(II) Tetrasulfophthalocyanine Catalyzed Aerobic Oxidation of Thiols to Disulfides under Neutral Conditions" *Monatshefte fur Chemie* **2008**, *139*, 613–615.
- 35) Ahmad Shaabani, Ebrahim Soleimani, **Ali Hossein Rezayan**, Afshin Sarvary, Hamid Reza Khavasi "A novel isocyanide-based four-component reaction: A facile synthesis of fully substituted 3,4-dihydrocoumarin derivatives" *Organic Letters* **2008**, *10*, 2581-2584.
- 36) Ahmad Shaabani, Ebrahim Soleimani, Afshin Sarvary, **Ali Hossein Rezayan** "A simple and efficient approach to the synthesis of 4H-furo[3,4-*b*]pyrans via a three component reaction of isocyanides" *Bioorganic Medicinal Chemistry Letters* **2008**, *18*, 3968-3970.
- 37) Ahmad Shaabani, **Ali Hossein Rezayan**, Marjan Heidary, Afshin Sarvary "Meldrum's acid catalyzed reaction of tetracyanoethylene and aldehydes in water: A novel approach for the synthesis of arylidenemalononitrile" *Chemical & Pharmaceutical Bulletin* **2008**, *56*, 1480–1482.
- 38) Ahmad Shaabani, **Ali Hossein Rezayan**, Marjan Heidary, Afshin Sarvary "Aerobic oxidation of silyl ethers to the corresponding carbonyl compounds using a combination of cobalt (II) tetrasulfophthalocyanine and 1-butyl-3-methyl-imidazolium chloride" *Catalysis Communications* **2008**, *10*, 129–131.
- 39) Ahmad Shaabani, **Ali Hossein Rezayan**, Marjan Heidary, Afshin Sarvary "A mild and efficient approach for the selective deprotection of benzyl and phenol *tri*-methylsilyl ethers in 1-butyl-3-methyl-imidazolium chloride" *Monatshefte fur Chemie* **2008**, *139*, 1471–1474.
- 40) Ahmad Shaabani, Afshin Sarvary, Ebrahim Soleimani, **Ali Hossein Rezayan**, Marjan

- Heidary "A novel and efficient method for the synthesis of substitute 3,4-dihydrocoumarin derivatives via isocyanide-based three-component reaction" *Molecular Diversity* **2008**, *12*, 197–202.
- 41) Ahmad Shaabani, R. Maleki-Moghaddam, Ali Maleki, **Ali Hossein Rezayan** "Microwave assisted synthesis of metal-free phthalocyanine and metallophthalocyanines" *Dyes and Pigments* **2007**, *74*, 279-282.
 - 42) Ahmad Shaabani, **Ali Hossein Rezayan** "Silica sulfuric acid promoted selective oxidation of sulfides to sulfoxides or sulfones in the presence of aqueous H₂O₂" *Catalysis Communications* **2007**, *8*, 1112–1116.
 - 43) Ahmad Shaabani, Ebrahim Soleimani, **Ali Hossein Rezayan** "A novel approach for the synthesis of alkyl and aryl sulfonamides" *Tetrahedron Letters* **2007**, *48*, 2185–2188.
 - 44) Ahmad Shaabani, **Ali Hossein Rezayan**, Abbas Rahmati and Afshin Sarvary "A Novel Isocyanide-Based Three-Component Condensation Reaction: Synthesis of Fully Substituted Imino- and Spiroiminocyclopentenes" *Synlett* **2007**, 1458-1460.
 - 45) Ahmad Shaabani, Afshin Sarvary, Abbas Rahmati, **Ali Hossein Rezayan** "Ionic liquid in conjunction with silica sulfuric acid promoted fast synthesis of Biginelli-like scaffold reaction" *Letters in Organic Chemistry* **2007**, *4*, 68-71.
 - 46) Ahmad Shaabani, Ebrahim Soleimani, **Ali Hossein Rezayan** "A novel approach for the synthesis of aryl amides" *Tetrahedron Letters* **2007**, *48*, 6137-6141.
 - 47) Ahmad Shaabani, Abbas Rahmati, Elham Farhangi, **Ali Hossein Rezayan** "One-step Synthesis of 3,4-Dihydrobenzimidazo[2,1-b]quinazolin-1(2H)-ones in an Ionic Liquid" *Monatshefte fur Chemie* **2007**, *138*, 615–618.
 - 48) Ahmad Shaabani, Abbas Rahmati, **Ali Hossein Rezayan**, Mariya Darvishi, Zahra Badri, Afshin Sarvary "Clean Synthesis in Water: Uncatalyzed Three-Component Condensation reaction of 3-Amino-1,2,4-triazole or 2-Aminobenzimidazole with Aldehyde in the Presence of Activated CH-Acids" *QSAR Comb. Sci.* **2007**, *26*, 973–979.
 - 49) Ahmad Shaabani, **Ali Hossein Rezayan**, Abbas Rahmatand, Masoumeh Sharifi "Ultrasound-accelerated Synthesis of 1,4-Dihydropyridines in an Ionic Liquid" *Monatshefte fur Chemie*, **2006**, *137*, 181-184.
 - 50) Ahmad Shaabani, **Ali Hossein Rezayan** "A very fast and easy procedure for the synthesis of metallophthalocyanines" *Journal of Porphyrins and Phthalocyanines* **2005**, *9*, 617-620.

6. Papers Presented at National and International Seminars

1. Ahmad Shaabani, **Ali Hossein Rezayan** "A Novel Isocyanide-Based Three-Component Condensation Reaction: Synthesis of Fully Substituted Imino- and Spiroimino cyclopentenes" Eighth Tetrahedron Symposium 2007 27-29 June 2007 Berlin, Germany.
2. **Ali Hossein Rezayan**, Ahmad Shaabani, Sajjad Kishipour and Afshin Sarvary "A Novel One-Pot Three-(in Situ Five-) Component Condensation Reaction: An Unexpected Approach for the Synthesis of Tetrahydro-2,4-dioxo-1H-benzo[b][1,5]diazepine-3-yl-2-methylpropanamide Derivatives" Tenth Tetrahedron Symposium 2009 23-26 June 2009 Paris, France.
3. Hossein Sabahi, **Ali Hossein Rezayan** "Polyphenol and cellulose act as a nitrification inhibitor by different mechanisms" International 17th Nitrogen Workshop –Innovations for

- sustainable use of nitrogen resources. 26th–29th June 2012, Wexford, Ireland
- Ahmad Shaabani, **Ali Hossein Rezayan** “A very fast and easy procedure for the synthesis of metallophthalocyanines” **12th Iranian Seminar of Organic Chemistry** 7-9 March 2006 **Ahwaz Jundi Shapour University of Medicine Sciences**
 - Ahmad Shaabani, **Ali Hossein Rezayan** “A stereoselective three-component condensation reaction: The facile synthesis of a novel class of fluorinated (7,8*H*)benzothiazolo[3,2-*a*]pyrimidines and 1,2,4-triazolo[4,3-*a*]pyrimidines” **13th Iranian Seminar of Organic Chemistry** 7-9 September 2006 **Bu-Ali Sina University**
 - Ahmad Shaabani, **Ali Hossein Rezayan** “Aerobic Oxidation of Silyl Ethers to the Corresponding Carbonyl Compounds Using a Combination of Cobalt (II) tetrasulfophthalocyanine and 1-Butyl-3-Methyl-imidazolium Chloride” **International Catalysis Conference (ICC 2008), Shahid Beheshti University Tehran, Iran, April 28-30, 2008.**
 - Ahmad Shaabani, **Ali Hossein Rezayan** “TCNE and TCNQ in Organic Synthesis” **15th Iranian Seminar of Organic Chemistry (15ISOC)**, August 27-29, 2008, **Razi University, Kermanshah.**
 - Ali Hossein Rezayan**, “Recent challenge in coupling reaction of isocyanides with carboxylic acids:” **16th Iranian Seminar of Organic Chemistry (16ISOC)** , August 18-20, 2009, **Zanjan University, Zanjan.**
 - Ali Hossein Rezayan**, “Novel methods to synthesis of bifunctional sulfonamide-amide compounds *via* isocyanide-based multicomponent reactions:” **17th Iranian Seminar of Organic Chemistry (17ISOC)** , October 13-15, 2010, **Mazandaran University of Babolsar.**
 - Ali Hossein Rezayan**, Hossein Sabahi, Abbas Rahmati “A novel three-component condensation reaction between isoquinoline or pyridine and dialkyl acetylenedicarboxylate with tetronic acid” **15th Iranian Chemistry Congress** 4-6 September 2011 **Bu-Ali Sina University**
 - Ali Hossein Rezayan**, Parisa Azerang, Soroush Sardari, Afshin Sarvary “Multicomponent Synthesis and Biological Evaluation of Coumarin Derivatives as Inhibitors of *Mycobacterium bovis* (BCG)” **19th Iranian Seminar of Organic Chemistry**, 5-7 Sep. 2012. **Vali-e-Asr University of Rafsanjan**

Lecture

- Ali Hossein Rezayan**, “Recent challenge about two-component reaction of isonitriles with carboxylic acids” **16th Iranian Seminar of Organic Chemistry (16ISOC)** , August 18-20, 2009, **Zanjan University, Zanjan.**

7. Completed and Current Research Projects Participated

- 1) A stereoselective three-component reaction: the facile synthesis of a novel class of fluorinated (7,8*H*)benzothiazolo[3,2-*a*]pyrimidines. Shahid Beheshti University, Tehran, Iran, 2006.
- 2) A novel method for the synthesis of arylidenemalononitrile Shahid Beheshti University, Tehran, Iran, 2007.
- 3) Synthesis and evaluation of super-para-magnetic iron oxide nanoparticles coated with water-soluble polymers and conjugated with antibodies as differentiation factors for improving the sensitivity of magnetic resonance imaging of cancer cells
- 4)

8. Teaching for B.Sc. , M.Sc. and PhD. Students

1. Identification Methods in Nanobiostructure (Ph.D. Course)
2. Chemistry in Nanobiotechnology (Ph.D. Course)
3. Applied Chemistry and Physics in Nanobiotechnology (Ph.D. Course)
4. Surface modification, functionalization and Conjugation Chemistry (Ph.D. and M.Sc. Course)
5. Drug Delivery systems (M.Sc. Course)
6. Polymers and Their Applications in Biomedical Engineering
7. Nanotechnology Principles (M.Sc. Course)
8. Methods in Biochemistry and Biophysics (M.Sc. Course)
9. Advanced NMR Spectroscopy in Organic Chemistry (M.Sc. Course)
10. Physical Organic Chemistry (B.Sc. and M.Sc. Course)
11. Advanced Organic Chemistry (M.Sc. Course)
12. Organic Chemistry (B.Sc. Course)