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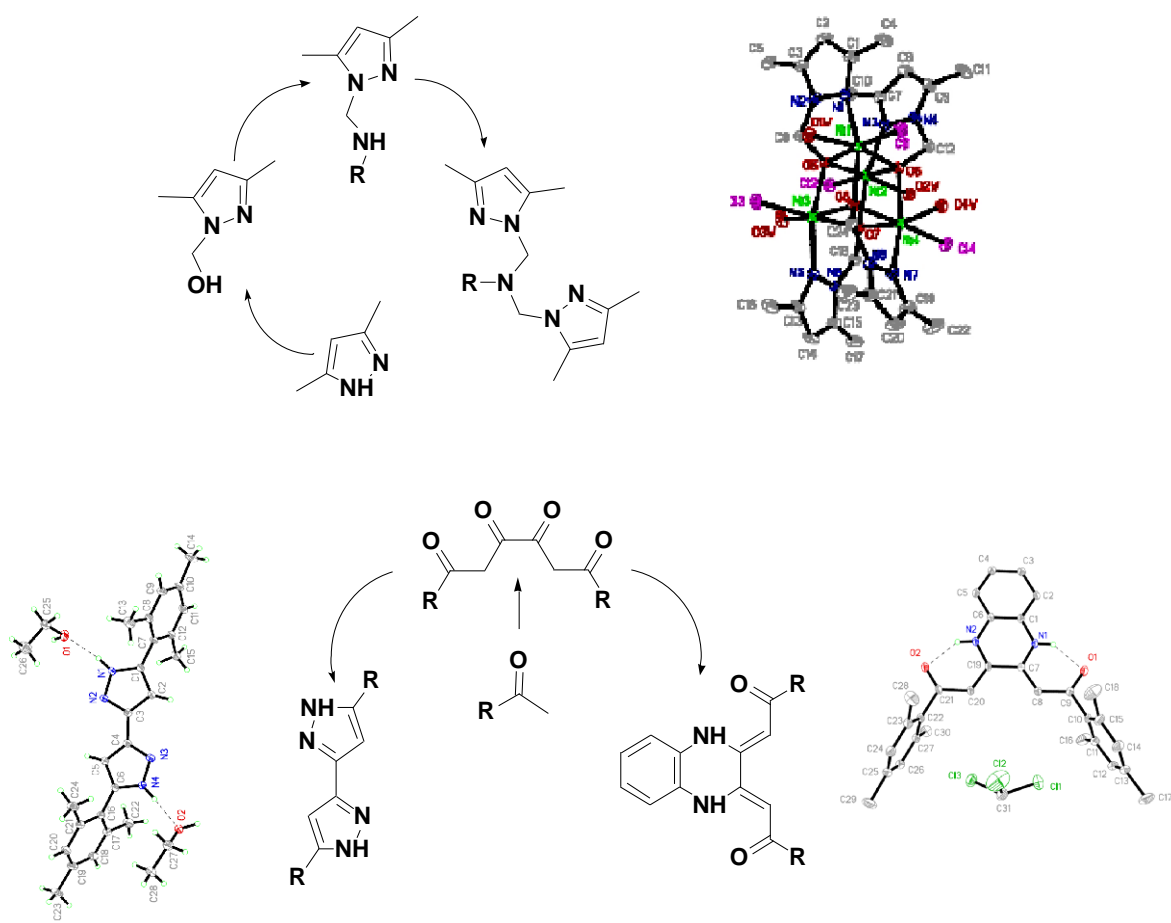
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AREA OF RESEARCH AND INTEREST

- Elaboration, development, Synthesis, characterizations of organic heterocyclic compounds (pyrazole, triazole and quinoxalin)



R = Alkyl; Aryl; Fonction and others

- Synthesis of new materials and use them in many applications:
 - Bioactive substances
 - Organic inhibitors of corrosion
 - Heterocyclic ligands for coordination
 - Sensors for pollutants gas and heavy metals from aqueous solutions
 - New catalysts for organic reaction
 - Dendrimers
 - Natural compounds

EDUCATION

- 2009: Habilitation, Université Mohammed Premier, Faculté des Sciences, Oujda, Morocco
Combinatorial Chemistry, Dendrimers and Catalysis: New Approach for Green Chemistry
- 2001: PhD, Université Mohammed Premier, Faculté des Sciences, Oujda, Morocco
Synthesis of variety of Nitrogen compounds and their biological activity studies (antifungicity, anticancer, and antituberculosis action and interaction with DNA)
- 1997: C.E.A (MSc) of Organic Chemistry, Université Mohammed IV, Rabat, Morocco
With Profs El Mokhtar Essassi and Rachid Zniber
Synthesis of new heterocyclic compounds such as benzodiazepine and benzimidazole
- 1996: Licence (BSc) of Organic Chemistry, Université Mohammed I, Oujda, Morocco

TEACHING

Since 2005: General Organic Chemistry & Heterocyclic Chemistry & Hetero-Element Chemistry & Polymer and Macromolecular Chemistry & Supramolecular Chemistry.

PROFESSIONAL EXPERIENCES

- 2010: Fulbright fellowship us visiting scholar in Rutgers University, USA with Prof Alan S. Goldman
- 28/02 to 05/03/2010: Invited Member in MENA delegation PITTCON 2010, Orlando-Florida USA
- 2008-2009: Training formation with Dr Sylvain Nlate (University of Bordeaux, France)
With Profs Guiseppe Vasapollo and Roberto Rella (University of Salento, Lecce-Italy).
- 2002-2005: Postdoc position in Ottawa University, Canada, (in Dendrimers).
With Prof Howard Alper
- 2001-2002: Postdoc position in Rennes1 University, France (in Combinatorial Chemistry and Catalysis)
With Profs Pierre H Dixneuf and Olivier Lavaste.
- 1998-2001: National Doctorate (PhD) in Organic, Organometallic and Analytical Chemistry, Université Mohamed Premier, Faculté des Sciences, Oujda, Morocco.
With Profs Abdelkrim Ramdani and Sghir El Kadiri in collaboration with Profs Belkheir Hammouti, Taibi Ben Hadda and Pierre H. Dixneuf.

AFFILIATIONS AND RESPONSIBILITIES

- 2010-Present: Assistant – Editor of Journal of Materials and Environmental Science JMES
(<http://www.jmaterenvironsci.com>)
- 2010-2014 : Member du conseil de la Faculté Pluridisciplinaire de Nador – Morocco
- 2010-2014 : Member du conseil de l'Université Mohammed Premier Oujda - Morocco
- Since 2000 Member of the Moroccan Group of Heterocyclic Chemistry (GMCH)
- Since 2001 Member of the French Chemical Society (FCS)
- Since 2003 Member of the Canadian Chemical Society (CCS)
- Since 2003 Member of the American Chemical Society (ACS)
- 2011-2013 Coordinator of L'Observatoire de Marchica FPN (OLM)
- Since 2011 Vice director of LCAE-URAC18 (Laboratory)
- Editorial board and Reviewer for many journals

INTERNATIONALE COLLABORATIONS

- Prof. Pierre H. Dixneuf, University of Rennes1, France
- Prof. Henri Doucet, University of Rennes1, France
- Prof. Sylvain Nlate, Université de Bordeaux, France
- Prof. Olivier Lavastre, Université de Rennes 1 France
- Prof. Alan S. Goldman, University of Rutgers USA
- Prof. Pierre Le Gendre, Université de Bourgogne, Dijon, France
- Prof. Ewen Bodio, Université de Bourgogne, Dijon, France
- Prof. Guiseppe Vasapollo, University of Salento Italy
- Prof. Roberto Rella, Istituto per la Microelettronica e Microsistemi del CNR-IMM Lecce, Italy
- Prof. Said Ghalem, University of Tlemcen Algeria
- Prof. Zahia Kabouche, University of Kostantine Algeria
- Prof. Howard Alper, University of Ottawa Canada
- Prof. Deryn Fogg, University of Ottawa Canada
- Prof. Veejendra K. Yadav, Indian Institute of Technology Kanpur, India

Book chapters

1) "Bis pyrazole based thin films for optical gas detection"

R. Touzani, S. El Kadiri, A. Zerrouki, S. Scorrano, G. Vasapollo, M. G. Manera, F. Casino, R. Rella
Proceeding AISEM2010, 8-10 febbraio 2010, Messina (Italia), edito da G. Neri et al., Capitolo 11,
Sensors and Microsystems, (2011),
ISBN: 978-94-007-1323-9, DOI: 10.1007/978-94-007-1324-6-11.

2) "DFT and Quantum Chemical Studies for Heterocyclic Compounds Used as Corrosion Organic Inhibitors"

A. Zarrouk, B. Hammouti & R. Touzani, (2012) LAP Lambert Ac. Publishing Ed.
ISBN 978-3-659-21601-5, Chaps 1-5, pages 89.

Representative publications

1. One Pot Pd(OAc)₂-Catalysed 2,5-Diarylation of Imidazoles Derivatives,

A. Takfaoui, L. Zhao, R. Touzani, J.-F. Soulé, P.H. Dixneuf, H. Doucet ;
Tetrahedron 70(44) (2014) 8316-8323.

2. Palladium-Catalysed Direct Diarylations of Pyrazoles with Aryl Bromides: A One Step Access to 4,5-Diarylpyrazoles,

A. Takfaoui, L. Zhao, R. Touzani, P.H. Dixneuf, H. Doucet ,
Tetrahedron Letters 55 (2014) 1697–1701.

3. Library of synthetic compounds based on pyrazole unit: design and screening against breast and colorectal cancer

F. Abrigach, M. Khoutoul, N. Benchat, S. Radi, N. Draoui, O. Feron, O. Riant, R. Touzani,
Letters in Drug Design & Discovery, 11 (2014) 1010-1016.

4. Pyrazole and quinoxaline: synthesis and X-ray structural characterization of new tridentate (N,N,N) and bidentate (N,N or N,O) ligands.

M. Lamsayah, A. Takfaoui, A. Mouadili, M. Haibach, A. J. Nawara-Hultzsich, T.J. Emge,
R. Touzani, *Moroccan Journal of Chemistry*, 2 (3) (2014) 199-210.

5. 2-(2-hydroxyethyl)-6-phenylpyridazin-3(2H)-one as corrosion inhibitor for mild steel in hydrochloric acid solution

- A.Ghazoui, H. Tayebi, N. Benchat, A. Zarrouk, B. Hammouti, R. Salghi, A. Guenbour, R. Touzani,
Der Pharma Chemica, 6 (3) (2014) 6-16.
6. **Air Oxidation of catechol by in situ Copper(II) complexes with ligands containing benzyl groups**
A. Mouadili, I. Lakehal, A. Takfaoui, F. Halaimia, H. Nacer, B. Hammouti, Messali M., R. Touzani
J. Mater. Environ. Sci. 5 (3) (2014) 715-722.
 7. **Anti-corrosive properties of (E)-4-methoxy-N-(methoxybenzylidene)aniline and (E)-N-(4-methoxybenzylidene)-4-nitroaniline coating on mild steel in molar hydrochloric.**
H. Elmsellem, H. Nacer, F. Halaimia, A. Aouniti, I. Lakehal, A. Chetouani, S. S. Al-Deyab, I. Warad, R. Touzani ; B. Hammouti,
Inter. J. Electrochem. Sci. 9 (2014) 5328 – 5351.
 8. **Synthesis, characterization and thermal degradation kinetics of Copolyesters,**
A. Benarbia, A. Elidrissi, I. Ganetri, R. Touzani,
J. Mater. Environ. Sci. 5 (4) (2014) 1262-1279
 9. **Synthesis of new C,C-linked bipyrazole, comparative theoretical calculations;**
I. Bouabdallah, I. Zidane, R. Touzani, F. Malek, A. Ramdani, A.F. Jalbout, B. Trzaskowski;
Chemical Science Transactions 3(2) (2014) 805-811.
 10. **Evaluation of Microwave Effect on the Selective Dealkylation of Alkyl Aryl Ether In Solvent-free Heterogeneous Basic Media ;**
A. Oussaid, R. Touzani, A. Loupy,
J. Mater. Environ. Sci. 5 (3) (2014) 739-746.
 11. **Catecholase activity investigations using in-situ copper complexes with pyrazol and pyridine based ligands;**
A. Mouadili, A. Attayibat, S. El Kadiri, S. Radi, R. Touzani,
Applied Catalysis A General, 454 (2013) 93-99.
 12. **Antifungal activities of amino acid ester functional pyrazolyl compounds against: *Fusarium oxysporum* f.sp. *albedinis* and *Saccharomyces cerevisiae* yeast,**
N. Boussalah, R. Touzani, F. Souna, I. Himri, A. Hakkou, S. Ghalem, S. El Kadiri,
Journal of Saudi Chemical Society, 17 (2013) 17-21.
 13. **Inhibition effects of two tripodal pyrazolic derivatives on the corrosion of mild steel in 1. HCl medium.**
H. Bendaha, A. Zerrouk , A. Aouniti, B. Hammouti, S. El Kadiri, R. Salghi, R. Touzani,
Phys. Chem. News 64 (2012) 95-103.
 14. **Gas solid state detection towards thin films based on pyrazole units and their morphological characterization using AFM,**
R. Touzani, S. El Kadiri, A. Zerrouki, G. Vasapollo, S. Scorrano, R. Del Sole, M.G. Manera and R. Rella, *Research on Chemical Intermediates* 38 (9) (2012) 2245-2254.
 15. **The adsorption and corrosion inhibition of 2-[Bis-(3,5-dimethyl-pyrazol-1-ylmethyl)-amino]-pentanedioic acid on carbon steel corrosion in 1.0 m HCl,**
A. Zarrouk, H. Zarrok, R. Salghi, N. Bouroumane, B. Hammouti, S. S. Al-Deyab, R. Touzani ,
Int. J. Electrochem. Sci., 7 (2012) 10215-10232.
 16. **DFT and Quantum chemical investigation of molecular properties of substituted pyrrolidinones,**
M. Bouklah, H. Harek , R. Touzani, B. Hammouti, Y. Harek,

- 17. Synthesis and structural characterization of new polynuclear complexes of 1-hydroxymethyl-3,5-dimethylpyrazole with Ni(II) and Fe(II)**
R. Touzani, M. Haibach, A.J. Nawara-Hultzsch, S. El Kadiri, T.J. Emge, A.S. Goldman,;
Polyhedron 30(15) (2011) 2530-2534.
- 18. New azole antifungal agents with novel modes of action: Synthesis and biological studies of new tridentates ligands based on pyrazole and triazole.**
H. Bendaha, L. Yu, R. Touzani, R. Souane, G. Giaever, C. Nislow, C. Boone, S. El Kadiri, G.W. Brown, M. Bellaoui.
European Journal of Medicinal Chemistry, 46(9), (2011), 4117-4124.
- 19. FLAVONOIDS FROM *Centaurea sulphurea* ,**
A. Kabouche, Z. Kabouche, R. Touzani, C. Bruneau,
Chemistry of Natural Coumpounds, 46 (6) (2011) 966-967.
- 20. New complexes based on tridentate bipyrazole ligand for optical gas sensing,**
R. Touzani, G. Vasapollo, S. Scorrano, R. Del Sole, M.G. Manera, R. Rella and S. El Kadiri,
Materials Chemistry and Physics 126 (2011) 375-380.
- 21. Liquid-liquid extraction of metals by using new bipyrazolic compounds.**
I. Bouabdallah, B. Hacht, I. Zidane, A. Ramdani, R. Touzani,
Journal of Environmental and Materials Science, 1(1) 2010, 20-24.
- 22. Synthesis, Characterization by means of IR, ¹H, ¹³C - NMR and Biological Investigations on New Diorganotin Carboxylic Acid Derivatives**
A. Yahyi, A. Et-touhami, R. Yahyaoui, R. Touzani,
Letters Design & Drug Discovery, 7(7) (2010) 534-540.
- 23. Quantum chemical studies on N-donors based-pyrazole compounds as corrosion inhibitors for steel in acidic media.**
A. Attayibat, R. Touzani, S.Radi, S. El Kadiri, S. Sarimène Abdelli, S. Ghalem;
Asian Journal of Chemistry 21 (1); (2009) 105-112.
- 24. Synthesis of new tripodal ligand 5-(bis(3,5-dimethyl-1H -pyrazol-1-ylmethyl)amino)pentan-1-ol, Catecholase activities studies of three functional tripodal pyrazolyl N-donor ligands, with different copper (II)salts.**
El Kodadi M.; Malek, F.; Touzani, R.; Ramdani, A.
Catalysis Communications 9 (2008), 966 –969.
- 25. Ruthenium-Ligand complex, an efficient inhibitor of steel corrosion in H₃PO₄ media.**
Benabdellah, M.; Touzani, R. ; Dafali, A. ; Hammouti, B.; El Kadiri, S.
Materials Letters, 61 (2007) 1197–1204.
- 26. Liquid-liquid extraction of copper(II), cadmium(II) and lead(II) using tripodal N-donor pyrazole ligands**
Bouabdallah, I.; Zidane, I.; Hacht, B.; Touzani, R.; Ramdani, A. *ARKIVOC* 11 (2006) 1-7.
- 27. Synthesis, characterization and crystal structure of a new bis-tripodal ligand: N,N,N',N'-tetrakis[(1,5-dimethylpyrazol-3-yl)methyl]-1,4-phenylenediamine.**
Bouabdallah, I.; Ramdani, A.; Zidane, I.; Touzani, R.; Eddike, D.; Radi, S.; Haidoux, A.
Journal of Chemical Research 4 (2005) 242-244.

- 28. Homologation of monoterpenoids into new sesquiterpenoids via tandem isomerization/claisen rearrangement reactions with three-component ruthenium catalysts, and Ru(methallyl)₂ (COD) revealed by high throughput screening techniques.**
Le Notre, J.; Touzani, R.; Lavastre, O.; Bruneau, C.; Dixneuf, P. H.
Advanced Synthesis & Catalysis (2005) 347(6) 783-791.
- 29. PAMAM dendrimer-palladium complex catalyzed synthesis of five-, six- or seven membered ring lactones and lactams by cyclocarbonylation methodology**
Touzani, R.; Alper, H. *Journal of Molecular Catalysis A: Chemical* (2005) 227(1-2) 197-207.
- 30. Image Analysis as a Quantitative Screening Test in Combinatorial Catalysis: Discovery of an Unexpected Ruthenium-Based Catalyst for the Sonogashira Reaction.**
Garbacia, S.; Touzani, R.; Lavastre, O. *Journal of Combinatorial Chemistry* (2004) 6(3) 297-300.
- 31. Efficient Solution Phase Combinatorial Access to a Library of Pyrazole- and Triazole-Containing Compounds**
Touzani, R.; Garbacia, S.; Lavastre, O.; Yadav, V. K.; Carboni, B.
Journal of Combinatorial Chemistry (2003)5(4)375-378.
- 32. 2,3-Bifunctionalized quinoxalines: Synthesis, DNA interactions and evaluation of anticancer, antituberculosis and antifungal activity.**
Waring, M. J.; Ben-Hadda, T.; Kotchevar, A.T.; Ramdani, A.; Touzani, R.; Elkadiri, S.; Hakkou, A.; Bouakka, M.; Ellis, T. *Molecules* (2002) 7(8) 641-656.
- 33. Efficient synthesis of new nitrogen donor containing tripods under microwave irradiation and without solvent.**
Touzani, R.; Ramdani, A.; Ben-Hadda, T.; El Kadiri, S.; Maury, O.; Le Bozec, H.; Dixneuf, P.H.
Synth. Commun. (2001) 31(9) 1315-1321.
- 34. Solution, solid state structure and fluorescence studies of 2,3-functionalized quinoxalines: evidence for a π -delocalized keto-enamine form with N-H ...O intramolecular hydrogen bonds.** Touzani, R.; Ben-Hadda, T.; El Kadiri, S.; Ramdani, A.; Maury, O.; Le Bozec, H.; Toupet, L.; Dixneuf, P. H. *New J. Chem.*, (2001) 25(3) 391-395.