

CURRICULUM VITA OF Dr. RACHID TOUZANI

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ORGANIC, ORGANOMETALLIC AND ANALYTICAL CHEMISTRY

A highly motivated and ambitious person. Fluent in English, French and Arabic. Noted for being People-oriented and results driven with strong interpersonal, communication and organizational skills. At ease working in a team environment or independently. Enjoy being challenged and motivated to find solutions to chemistry's problems such as the environment, energy, materials, catalysis, and drug discovery.

He has approximately twenty-three years of research experience in organic synthesis especially in the area of heterocyclic chemistry (pyrazole, triazole, pyridine, imidazole and quinoxaline), organometallic catalysis (Cu, Pd, Rh and Ru), oxidation reactions of catechol, inhibition of corrosion in acidic media, elimination and detection of hazardous molecules, dendrimers, and synthetic and natural bioactive products. In 2010 he wins Fulbright fellowship as visiting scholar in Rutgers University USA. He has been also Invited as Member in MENA delegation for participation in PITTCON 2010, Orlando-Florida USA. He has supervised more than 20 PhD and master students. He has been selected for research excellence award in 2018, University Mohammed Premier, Morocco. He developed and participate in many national and international research projects. He has developed and has built many international collaborations.

EDUCATION AND EXPERIENCE

2015- present: Full Professor, University Mohammed Premier, Oujda- Morocco

- Synthesis, characterisations and applications of organic heterocyclic compounds
- Elaboration, development and scale-up of organic syntheses
- Synthesis of bioactive molecules
- Experience with sensitive organometallic compounds
- Use of instruments such as GC, IR, NMR, UV, and robot for parallel synthesis
- Experience with homogenous and heterogeneous catalyst
- Experience with combinatorial chemistry
- Experience with dendrimers and their applications
- Experience with Sensors for pollutants gas
- Naturel products: aromatic and medicinal plants

2009-2015: Associate Professor University Mohammed Premier, Faculty Pluridisciplinary of Nador, Morocco

- Combinatorial Chemistry
- Dendrimers
- Catalyse
- Green Chemistry
- Nitrogen Heterocyclic Compounds Synthesis
- Naturel products: aromatic and medicinal plants

2005- 2009: Assistant Professor; University Mohammed Premier, Faculty Pluridisciplinary of Nador, Morocco

- General Organic Chemistry.
- Responsible for course and TA in General Organic Chemistry.
- Biochemistry.
- Oxidation Catalysis Reaction.
- Heterocyclic Synthesis and Their Applications.

2003-2005: Postdoctoral position in Ottawa University, Ontario Canada, (Dendrimers)

- Synthesis of environment supported catalyst on silica dendrimers.
- Carbonylation reaction of allyl compounds and synthesis of new heterocyclic compounds with the improvement of the yields and the recyclability of the catalyst.
- Hydroformylation reactions.
- Manager in research laboratory for one year.

2001-2002: Postdoctoral position in Rennes1 University, France (Combinatorial Chemistry)

- Development of an efficient access, fast and simple purification techniques to tripodal compounds with the opportunity to easily change one, two, or all three of the building blocks.
- Parallel synthesis with a High Throughput method using either plate or robotics for the synthesis of heterocyclic libraries.
- Performing a combinatorial catalysis approach for the activation of diolefin derivative, while showing the impact of the TLC screening test for detection of unexpected catalytic activity.

1998-2001: National Doctorate (PhD) in Organic, Organometallic and Analytical Chemistry, University Mohammed Premier, Oujda, Morocco

Synthesis of variety of Nitrogen compounds and their biological activity studies (antifungicity, anticancer, and antituberculosis action and interaction with DNA)

- Synthesis of new nitrogen ligands, under microwave irradiation in the absence of solvent, which offers numerous advantages, such as reducing the reaction time, improvement the yields, and simplifying the experimental procedure.
- Synthesis of variety of bifunctionalized quinoxaline, which possess strong intramolecular NH---O bonds may be responsible for the biological activity studies (antifungicity, anticancer, and antituberculosis action and interaction with DNA).
- Preparation of ruthenium (II) organometallic complexes.
- Successful collaboration with Prof. Pierre H. Dixneuf, Institute of Chemistry of Rennes, France. Participated in three training sessions over a two-year period for metal complex synthesis and olefin metathesis application.

1997: C.E.A (MSc) of Organic Chemistry, University Mohammed IV, Rabat, Morocco

Synthesis of new heterocyclic compounds such as benzodiazepine and benzimidazole.

Publications by applications (more than 230 documents)

1) Inhibition of the corrosion properties

1. N Mechbal, ME Belghiti, N Benzbiria, CH Lai, Y Kaddouri, Y Karzazi, ... Correlation between corrosion inhibition efficiency in sulfuric acid medium and the molecular structures of two newly eco-friendly pyrazole derivatives on iron oxide surface, *Journal of Molecular Liquids* 331 (2021)115656.
2. A El Hattak, S Izzaouihda, Z Rouifi, F Benhiba, S Tabti, A Djedouani, ... Anti-corrosion performance of pyran-2-one derivatives for mild steel in acidic medium: Electrochemical and theoretical study, *Chemical Data Collections* 32 (2021) 100655.
3. Y El Ouadi, M Lamsayah, H Bendaif, F Benhiba, R Touzani, I Warad, ..., Electrochemical and theoretical considerations for interfacial adsorption of novel long chain acid pyrazole for mild steel conservation in 1 M HCl medium, *Chemical Data Collections* 31 (2021) 100638.
4. A Benzai, F Derridj, O Mouadili, M El Azzouzi, M Kaddouri, K Cherrak, ..., Anti-Corrosive Properties and Quantum Chemical Studies of (Benzoxazol) Derivatives on Mild Steel in HCl (1 M), *Portugaliae Electrochimica Acta* 39 (2) (2021) 135-153.
5. Arrousse, N., Salim, R., Kaddouri, Y., Touzani, R., Taleb, M., Jodeh, S.; The inhibition behavior of two pyrimidine-pyrazole derivatives against corrosion in hydrochloric solution: Experimental, surface analysis and in silico approach studies; *Arabian Journal of Chemistry*; 13(7), (2020) 5949-5965.
6. Bouklah, M., Daoudi, W., Hammouti, B., Touzani, R., Radi, S., Ramdani, M., Bouyanzer, A., Aouniti, A., Salghi, R., Inhibitor adsorption processes in mild steel/new bipyrazole derivatives/hydrochloric acid system, *Materials Today: Proceedings*; 27 (4) (2020) 3209-3216.
7. Khattabi, M., Benhiba, F., Tabti, S., Touzani, R., Oudda, H., Zarrouk, A.; Performance and computational studies of two soluble pyran derivatives as corrosion inhibitors for mild steel in HCl; *Journal of Molecular Structure*; 1196, (2019) 231-244.
8. Guerraf, A.E., Titi, A., Cherrak, K., (...), Touzani, R., Hammouti, B., Lgaz, H.; The Synergistic Effect of Chloride Ion and 1,5-Diaminonaphthalene on the Corrosion Inhibition of Mild Steel in 0.5 M Sulfuric Acid: Experimental and Theoretical Insights.; *Surfaces and Interfaces*; 13 (2018)168-177.
9. Titi, A., Mechbal, N., El Guerraf, A., (...), Touzani, R., Chung, I.-M., Lgaz, H.; Experimental and Theoretical Studies on Inhibition of Carbon Steel Corrosion by 1,5-Diaminonaphthalene; *Journal of Bio- and Tribo-Corrosion*; 4(2) (2018) 22.
10. Louadi, Y.E., Abrigach, F., Bouyanzer, A., (...), Touzani, R., Zarrouk, A., Hammouti, B.; Theoretical and experimental studies on the corrosion inhibition potentials of two tetrakis

- pyrazole derivatives for mild steel in 1.0 M HCl; *Portugaliae Electrochimica Acta*; 35(3)(2017)159-178.
11. Kaddouri, Y., Takfaoui, A., Abridach, F., (...), Touzani, R., Sdassi, H.; Tridentate pyrazole ligands: Synthesis, characterization and corrosion inhibition properties with theoretical investigations; *Journal of Materials and Environmental Science*; 8(3), (2017) 845-856.
 12. Bousskri, A., Anejjar, A., Salghi, R., (...), Touzani, R., Bazzi, L., Lgaz, H.; Corrosion control of carbon steel in hydrochloric acid by new eco-friendly picolinium-based ionic liquids derivative: Electrochemical and synergistic studies; *Journal of Materials and Environmental Science*; 7(11) (2016) 4269-4289.
 13. El Arrouji, S., Ismaily Alaoui, K., Zerrouki, A., (...), Touzani, R., Chetouani, A., Aouniti, A.; The influence of some pyrazole derivatives on the corrosion behaviour of mild steel in 1M HCl solution; *Journal of Materials and Environmental Science*; 7(1) (2016) 299-309.
 14. Hmamou, D.B., Salghi, R., Zarrouk, A., (...), Touzani, R., Hammouti, B., El Assyry, A.; Investigation of corrosion inhibition of carbon steel in 0.5 M H₂SO₄ by new bipyrazole derivative using experimental and theoretical approaches; *Journal of Environmental Chemical Engineering*; 3(3) (2015) 2031-2041.
 15. Zarrouk, A., Assouag, M., Zarrok, H., (...), Touzani, R., Hammouti, B., Bouachrine, M.; Theoretical study of a new group of corrosion inhibitors; *Research Journal of Pharmaceutical, Biological and Chemical Sciences*; 6(4) (2015) 1874-1882.
 16. El Ouadi, Y., Bouratoua, A., Bouyanzer, A., (...), Touzani, R., Hammouti, B., Chetouani, A.; Effect of Athamanta sicula oil on inhibition of mild steel corrosion in 1M HCl; *Der Pharma Chemica*; 7(2) (2015)103-111.
 17. Zarrok, H., Assouag, M., Zarrouk, A., (...), Touzani, R., El Hezzat, M., Bouachrine, M.; Quantum chemical study on the corrosion inhibition of some bipyrazoles; *Research Journal of Pharmaceutical, Biological and Chemical Sciences*; 6(4) (2015)1853-1860.
 18. El Ouadi, Y., Abridach, F., Bouyanzer, A., (...), Touzani, R., Zarrouk, A., Hammouti, B.; Corrosion inhibition of mild steel by new N-heterocyclic compound in 1 M HCl: Experimental and computational study; *Der Pharma Chemica*; 7(8) (2015) 265-275.
 19. Ghazoui, A., Tayebi, H., Benchat, N., (...), Guenbour, A., Touzani, R.; 2-(2-hydroxyethyl)-6-phenylpyridazin-3(2H)-one as corrosion inhibitor for mild steel in hydrochloric acid solution; *Der Pharma Chemica*; 6(3) (2014) 6-16.
 20. Elmsellem, H., Aouniti, A., Khoutoul, M., (...), Touzani, R., Elazzouzi, M.; Theoretical approach to the corrosion inhibition efficiency of some pyrimidine derivatives using DFT method of mild steel in HCl solution; *Journal of Chemical and Pharmaceutical Research*; 6(4) (2014)1216-1224.
 21. Bouhrira, K., Chetouani, A., Zerouali, D., (...), Yahyaoui, R., Touzani, R.; Theoretical investigation of inhibition of the corrosion of A106 steel in NaCl solution by di-n-butyl bis(thiophene-2-carboxylato-O,O')tin(IV): *Research on Chemical Intermediates*; 40(2), (2014) 569-586

22. Elmsellem, H., Nacer, H., Halaimia, F., (...), Touzani, R., Hammouti, B.; Anti-corrosive properties and quantum chemical study of (E)-4-methoxy-N-(methoxybenzylidene)aniline and (E)-N-(4-methoxybenzylidene)-4-nitroaniline coating on mild steel in molar hydrochloric; *International Journal of Electrochemical Science*; 9(9) (2014) 5328-5351.
23. Ismaily Alaoui, K., El Hajjaji, F., Azaroual, M.A., (...), Aouniti, A., Touzani, R.; Experimental and quantum chemical studies on corrosion inhibition performance of pyrazolic derivatives for mild steel in hydrochloric acid medium, Correlation between electronic structure and inhibition efficiency; *Journal of Chemical and Pharmaceutical Research*; 6(7) (2014) 63-81.
24. Zarrok, H., Zarrouk, A., Salghi, R., (...), Touzani, R., Oudda, H.; Corrosion and corrosion inhibition of carbon steel in hydrochloric acid solutions by 2-[bis-(3,5-dimethyl-pyrazol-1-ylmethyl)-amino]-3-hydroxy-butyric acid; *Der Pharmacia Lettre*; 5(3) (2013) 327-335.
25. El Ouali, I., Chetouani, A., Hammouti, B., (...), Touzani, R., El Kadiri, S., Nlated, S.; *Portugaliae Electrochimica Acta* ; 31(2)(2013) 53-78.
26. Ghazoui, A., Zarrouk, A., Benchat, N., (...), Touzani, R., Messali, M.; Adsorptive studies of ethyl (3-phenyl-6-thioxopyridazin-1(6h)-yl)acetate as corrosion inhibitors for steel in acidic medium; *Physical and Chemical News*; 70 (2013) 91-100.
27. Zarrouk, A., Zarrok, H., Salghi, R., (...), Al-Deyab, S.S., Touzani, R.; 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; *International Journal of Electrochemical Science*; 7(10) (2012) 10215-10232.
28. Kaddouri, M., Bouklah, M., Rekkab, S., (...), Touzani, R., Aouniti, A., Kabouche, Z.; Thermodynamic, chemical and electrochemical investigations of calixarene derivatives as corrosion inhibitor for mild steel in hydrochloric acid solution; *International Journal of Electrochemical Science*; 7(9) (2012) 9004-9023.
29. Rekkab, S., Zarrok, H., Salghi, R., (...), Touzani, R., Zougagh, M.; Green corrosion inhibitor from essential oil of eucalyptus globulus (Myrtaceae) for C38 steel in sulfuric acid solution; *Journal of Materials and Environmental Science*; 3(4) (2012) 613-627.
30. Bendaha, H., Zarrouk, A., Aouniti, A., (...), Salghi, R., Touzani, R.; Adsorption and corrosion inhibitive properties of some tripodal pyrazolic compounds on mild steel in hydrochloric acid systems; *Physical and Chemical News*; 64 (2012) 95-103.
31. Hammouti, B., Dafali, A., Touzani, R., Bouachrine, M.; Inhibition of copper corrosion by bipyrazole compound in aerated 3% NaCl; *Journal of Saudi Chemical Society*; 16(4) (2012) 413-418.
32. Boussalah, N., Ghalem, S., Kadiri, S.E., Hammouti, B., Touzani, R.; Theoretical study of the corrosion inhibition of some bipyrazolic derivatives: A conceptual DFT; investigation; *Research on Chemical Intermediates*; 38(8) (2012) 2009-2023.

33. Zarrok, H., Oudda, H., Midaoui, A.E., (...), Radi, S., Touzani, R.; Some new bipyrazole derivatives as corrosion inhibitors for C38 steel in acidic medium; *Research on Chemical Intermediates*; 38(8) (2012) 2051-2063.
34. Zarrouk, A., Zarrok, H., Salghi, R., (...), Touzani, R., Warad, I., Hadda, T.B.; A theoretical investigation on the corrosion inhibition of copper by quinoxaline derivatives in nitric acid solution; *International Journal of Electrochemical Science*; 7(7) (2012) 6353.
35. Zarrouk, A., Hammouti, B., Dafali, A., (...), Touzani, R., Bouachrine, M., Zertoubi, M.; Inhibition of copper corrosion in acid solution by *iV*-1- naphthylethylenediamine dihydrochloride monomethanolate: Experimental and theoretical study: Part-1; *Research on Chemical Intermediates*; 38(3-5) (2012) 1079-1089.
36. Zarrouk, A., Hammouti, B., Touzani, R., (...), Dafali, A., Elkadiri, S. Comparative study of new quinoxaline derivatives towards corrosion of copper in nitric acid; *International Journal of Electrochemical Science*; 6(10) (2011) 4939-4952.
37. Attayibat, A., Touzani, R., Radi, S., (...), Abdelli, I., Ghalem, S. ; Quantum Chemical studies on n-donors based-pyrazole compounds as corrosion inhibitors for steel in acidic media; *Asian Journal of Chemistry*; 21(1) (2009)105-112.
38. Benabdellah, M., Tabji K., Hammouti, B., Touzani, R., Aouniti, A., Dafali, A., El Kadiri, S., The effect of temperature on the corrosion of steel in 1M HCl in the presence of quinoxaline compound. *Physical and Chemical News*, 43 (2008) 115-120.
39. Benabdellah, M., Touzani, R., Aouniti, A., (...), Hammouti, B., Benkaddour, M.; Inhibitive action of some bipyrazolic compounds on the corrosion of steel in 1 M HCl. Part I: Electrochemical study; *Materials Chemistry and Physics* ; 105(2-3) (2007) 373-379.
40. Herrag, L., Hammouti, B., Aouniti, A., Kadiri, S.E., Touzani, R. ; Effect of diaminoalkane derivatives on steel corrosion in HCL media; *Acta Chimica Slovenica* ; 54(2) (2007) 419-423.
41. Benabdellah, M., Touzani, R., Dafali, A., Hammouti, B., El Kadiri, S.; Ruthenium-ligand complex, an efficient inhibitor of steel corrosion in H₃PO₄ media; *Materials Letters*; 61(4-5), (2007) 1197-1204.
42. Ouchrif, A., Zegmout, M., Touzani, R., Hammouti, B., Benkaddour, M., El Kadiri, S., 1-(1,5 dimethyl-1H-pyrazol-3-yl)-butane-1,3-dione as corrosion inhibitor for steel in 0.5M H₂SO₄. *Bulletin of Electrochemistry*; 23 (2007) 307-311.
43. Benabdellah, M., Touzani, R., Aouniti, A., Dafali, A., El Kadiri, S., Hammouti, B., Benkaddour, M., Investigation of the inhibitive effect of some quinoxalines compounds on the corrosion of steel in HCl solutions. *Physical and Chemical News*, 37 (2007) 63-69.
44. El Ouafi, A., Hammouti, B., Oudda, H., (...), Touzani, R., Ramdani, A. ; New bipyrazole derivatives as effective inhibitors for the corrosion of mild steel in 1M HCl medium; *Anti-Corrosion Methods and Materials*; 49(3) (2002) 199-204.
45. Dafali, A., Hammouti, B., Touzani, R., (...), Ramdani, A., el Kacemi, K.E.; Corrosion inhibition of copper in 3 per cent NaCl solution by new bipyrazolic derivatives; *Anti-Corrosion Methods and Materials*; 49(2) (2002) 96-104.

2) Biological properties

46. Y Kaddouri, F Abridach, S Ouahhoud, R Benabbes, M El Kodadi, ... Synthesis, characterization, reaction mechanism prediction and biological study of mono, bis and tetrakis pyrazole derivatives against *Fusarium oxysporum* f. sp. *Albedinis* with ... *Bioorganic Chemistry* 110 (2021) 104696.
47. Y Kaddouri, B Bouchal, F Abridach, M El Kodadi, M Bellaoui, R Touzani, Synthesis, Molecular Docking, MEP and SAR Analysis, ADME-Tox Predictions, and Antimicrobial Evaluation of Novel Mono-and Tetra-Alkylated Pyrazole and Triazole Ligands, *Journal of Chemistry* 2021.
48. Ben Hadda, T., Rastija, V., Al Malki, F., Titi, A., Touzani, R., Mabkhot, Y.N., Khalid, S., Zarrouk, A., Siddiqui, B.S., Petra/Osiris/ Molinspiration and Molecular Docking Analyses of 3-Hydroxy-Indolin-2-one Derivatives as Potential Antiviral Agents, *Current computer-aided drug design* 17 (1) (2021) 123-133.
49. A Titi, SM Almutairi, R Touzani, M Messali, M Tillard, B Hammouti, ... A new mixed pyrazole-diamine/Ni (II) complex, Crystal structure, physicochemical, thermal and antibacterial investigation, *Journal of Molecular Structure* 1236(2021)130304.
50. AR Bhat, RS Dongre, FA Almalki, M Berredjem, M Aissaoui, R Touzani, ... Synthesis, biological activity and POM/DFT/docking analyses of annulated pyrano [2, 3-d] pyrimidine derivatives: Identification of antibacterial and antitumor pharmacophore sites, *Bioorganic Chemistry* 106 (2021)104480.
51. Y Kaddouri, F Abridach, EB Yousfi, B Hammouti, M El Kodadi, A Alsalmé, ... New Heterocyclic Compounds: Synthesis, Antioxidant Activity and Computational Insights of Nano-antioxidant as Ascorbate Peroxidase Inhibitor by Various Cyclodextrins as Drug ... *Current Drug Delivery* (2021).
52. Jalal, M., Hammouti, B., Touzani, R., Aouniti, A., Ozdemir, I., Metal-NHC heterocycle complexes in catalysis and biological applications: Systematic review, *Materials Today: Proceedings*, online 16 July 2020.
53. Titi, A., Almutairi, S.M., Alrefaei, A.F., Touzani, R., Messali, M., Ali, I.; Novel phenethylimidazolium based ionic liquids: Design, microwave synthesis, in-silico, modeling and biological evaluation studies; *Journal of Molecular Liquids*; 315(2020)113778.
54. Titi, A., Messali, M., Alqurashy, B.A., Touzani, R., Almalki, F.A., Ben Hadda, T.; Synthesis, characterization, X-Ray crystal study and bioactivities of pyrazole derivatives: Identification of antitumor, antifungal and antibacterial pharmacophore sites; *Journal of Molecular Structure*; 1205 (2020)127625.

55. Touzani, R., Hammouti, B., Almalki, F.A., Ben Hadda, T., Coronavirus, Covid19, Covid-19 and SARS-Cov-2: A Global Pandemic, A Short Review, *J. Mater. Environ. Sci.*, 11(4) (2020) 736-750.
56. Kaddouri, Y., Abridach, F., Yousfi, E.B., El Kodadi, M., Touzani, R.; New thiazole, pyridine and pyrazole derivatives as antioxidant candidates: synthesis, DFT calculations and molecular docking study; *Heliyon*; 6(1) (2020) e03185.
57. Hadda TB, Rastija V, AlMalki F, Titi A, Touzani R, Mabkhot YN, Khalid S, Petra/Osiris/Molinspiration and Molecular Docking Analyses of 3-Hydroxy-Indolin2-one Derivatives as Potential Antiviral Agents. *Curr Comput Aided Drug Des.*, 16 (2019) 31878861.
58. Hammouti, B., Dahmani, M., Yahyi, A., Ettouhami, A., Messali, M., Asehraou, A., Bouyanzer, A., Warad, I., Touzani, R., Black Pepper, the “King of Spices”: Chemical composition to applications, *Arab. J. Chem. Environ. Res.*, 06 (2019) 12-56.
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63. Lotfi, N., Chahboun, N., El Hartiti, H., (...), Touzani, R., Ouhssine, M., Oudda, H.; Study of the antibacterial effect of Argan oil from Bechar region of Algeria on hospital resistant strains | [Etude de l'effet antibactérien de l'huile d'Argan de la région de Béchar de l'Algérie vis-à-vis des Souches résistantes hospitalières.]; *Journal of Materials and Environmental Science*; 6(9) (2015) 2476-2482.
64. Ferhat, M., Ghorab, H., Laggoune, S., (...), Touzani, R., Kabouche, A., Kabouche, Z.; Composition and antioxidant activity of the essential oil of thymus dreatensis from Algeria; *Chemistry of Natural Compounds*; 50(4) (2014) 747-749.
65. Abridach, F., Khoutoul, M., Merghache, S., (...), Benchat, N., Touzani, R.; Antioxidant Activities of N-((3,5-dimethyl-1H-pyrazol-1-yl)methyl)pyridin-4-amine derivatives; *Der Pharma Chemica*; 6(3) (2014) 280-285.
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70. Ghorab, H., Kabouche, A., Semra, Z., (...), Touzani, R., Kabouche, Z.; Biological activities and compositions of the essential oil of *Thymus ciliatus* from Algeria; *Der Pharmacia Lettre*; 5(1) (2013) 28-32.
71. Benmerache, A., Berrehal, D., Kabouche, A., (...), Touzani, R., Kabouche, Z.; Antioxidant, antibacterial activities and flavonoids of *convolvulus fatmensis* G. Kunze; *Der Pharmacia Lettre*; 5(1), (2013) 371-375.
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76. Yahyia, A., Et-Touhami, A., Yahyaouia, R., Touzani, R.; Synthesis, characterization by means of IR, ¹H, ¹³C - NMR and biological investigations on new diorganotin carboxylic acid derivatives; *Letters in Drug Design and Discovery*; 7(7) (2010) 534-540.
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3) Catalytic applications

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- 2-Synthese of heterocyclique palldo-catalysee via activation C-H
A. Takfaoui, H. Doucet, **R. Touzani**
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Mr. Yassine Kaddouri	Defended on July, 23, 2020
Mr. Morad Lamsayah	Defended on March, 24, 2018
Mr. Mohamed Khoutoul	Defended on July, 15, 2017
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2003-2014	Member of the American Chemical Society (ACS)

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- 2) Project: CNRST-CNRi: between University Mohammed Premier, Oujda Morocco and University of Bari Italie (New MOFs based on Pyrazole ligand: Crystal structure and Biological evaluation (2020-2021).
- 3) Project : CNRST-PPR2-P10 : Elaboration de Nouveaux Matériaux Greffés pour la Catalyse et le Piégeage des Métaux Toxiques (2016-2020).
- 4) Project: CNRST-CNRi: between University Mohammed Premier, Oujda Morocco and University of Lecce Italie (Elaboration and environmental application of organic probes based on pyrazole and pyridine derivatives) (2009-2010).

- 5) Project : CNRST-CNR France : Recherche de nouveaux agents thérapeutiques dendritiques contre les maladies infectieuses CHIMIE 07/08 (208-2009).
- 6) Project : CNRST-CNR France : Organométallique et Catalyse : chimie et électrochimie moléculaire, Action Intégrée N° 98 /160/SM (1999-2000).

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very good work, in my opinion your paper can be accepted for publication in Journal of Colloid and Interface Science after Minor Revisions and after fixing these points:

- 1) Title: very long
- 2) Abstract: Add the best rate of your catalytic activities or percentages
- 3) Keywords: add Green Chemistry
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- 7) Conclusion: Emphasize on your good results
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With regards

Dear all,

Greetings

In my opinion your work can be accepted for publication in Journal of Molecular Structure after minor revision and after fixing all these points:

- 1) Title is very long
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- 6) add also NMR spectrum proton and carbon such a single figure to your manuscript (one example is more than enough).
- 7) references are shifted to write side please fix them and add these references (- Y Kaddouri, et al., Bioorganic Chemistry 110 (2021) 104696; - Y Kaddouri, et al., Current Drug Delivery (2021); - F Abrigach, et al., Biomedicine and Pharmacotherapy; 103 (2018) 653; - F Abrigach, Medicinal Chemistry Research; 26(8) (2017)1784).

With regards