- Abd El Haleem, S.M., Abd El Wanees, S., Abd El Aal, E.E., Farouk, A., "Factors affecting the corrosion behaviour of aluminium in acid solutions. I. Nitrogen and/or sulphur-containing organic compounds as corrosion inhibitors for Al in HCl solutions," *Corrosion Science*, **68** (2013) 1-13.
- Abd El-Lateef, H.M., Abu-Dief, A.M., Abdel-Rahman, L.H., Sanudo, E.C., Aliaga-Alcalde, N., "Electrochemical and theoretical quantum approaches on the inhibition of C1018 carbon steel corrosion in acidic medium containing chloride using some newly synthesized phenolic Schiff bases compounds," *Journal of Electroanalytical Chemistry*, 743 (2015) 120-133.
- Abd El-Lateef, H.M., "Experimental and computational investigation on the corrosion inhibition characteristics of mild steel by some novel synthesized imines in hydrochloric acid solutions," *Corrosion Science*, **92** (2015) 104-117.
- Abdennabi, A.M.S., Abdulhadi, A.I., Abu-Orabi, S.T., Saricimen, H., "The inhibition action of 1 (benzyl) 1-H-4, 5-dibenzoyl-1, 2, 3-triazole on mild steel in hydrochloric acid media," *Corrosion science*, **38** (1996) 1791-1800.
- Achary, G., Sachin, H.P., Naik, Y.A., Venkatesha, T.V., "The corrosion inhibition of mild steel by 3-formyl-8-hydroxy quinoline in hydrochloric acid medium," *Materials Chemistry and Physics*, **107** (2008) 44-50.
- Afzal, O., Kumar, S., Haider, M.R., Ali, M.R., Kumar, R., Jaggi, M., Bawa, S., "A review on anticancer potential of bioactive heterocycle quinoline," *European journal of medicinal chemistry*, 97 (2015) 871-910.
- Ahamad, I., Prasad, R., Quraishi, M.A., "Inhibition of mild steel corrosion in acid solution by Pheniramine drug: Experimental and theoretical study," *Corrosion Science* 52 (2010) 3033–3041.
- Ahamad, I., Quraishi, M.A., "Mebendazole: New and efficient corrosion inhibitor for mild steel in acid medium," *Corrosion Science*, **52** (2010) 651-656.

Akid, R., "Corrosion of Engineering Materials," Handbook of advanced materials, 2004.

- Altaf, A.A., Shahzad, A., Gul, Z., Rasool, N., Badshah, A., Lal, B., Khan, E., "A Review on the Medicinal Importance of Pyridine Derivatives," *Journal of Drug Design and Medicinal Chemistry*, 1 (2015) 1-11.
- Amin, M.A., Abd El Rehim, S.S., Abdel-Fatah, H.T.M., "Electrochemical frequency modulation and inductively coupled plasma atomic emission spectroscopy methods for monitoring corrosion rates and inhibition of low alloy steel corrosion in HCl solutions and a test for validity of the Tafel extrapolation method," *Corrosion Science*, **51** (2009) 882-894.

- Ansari, K.R., Quraishi, M.A., "Bis-Schiff Bases of Isatin as New and Environmentally benign Corrosion Inhibitor for Mild Steel," *Journal of Industrial and Engineering Chemistry*, **20** (2014) 2819-2829.
- Ansari, K.R., Quraishi, M.A., "Experimental and computational studies of naphthyridine derivatives as corrosion inhibitor for N80 steel in 15% hydrochloric acid," *Physica E: Low-dimensional Systems and Nanostructures*, **69** (2015) (a) 322-331.
- Ansari, K.R., Quraishi, M.A., "Experimental and quantum chemical evaluation of Schiff bases of isatin as a new and green corrosion inhibitors for mild steel in 20% H2SO4," *Journal of the Taiwan Institute of Chemical Engineers*, 54 (2015) (b) 145-154.
- Ansari, K.R., Quraishi, M.A., Singh, A., "Corrosion inhibition of mild steel in hydrochloric acid by some pyridine derivatives: An experimental and quantum chemical study," *Journal of Industrial and Engineering Chemistry*, 25 (2015) 89-98.
- Ansari, K.R., Quraishi, M.A., Singh, A., "Schiff's base of pyridyl substituted triazoles as new and effective corrosion inhibitors for mild steel in hydrochloric acid solution," *Corrosion Science*, **79** (2014) 5-15.
- Arslan, T., Kandemirli, F., Ebenso, E.E., Love, I., Alemu, H., "Quantum Chemical Studies on the Corrosion Inhibition of some Sulphonamides on Mild Steel in Acidic Medium," *Corrosion Science*, **51** (2009) 35-47.

ASTM, Corrosion, Erosion and Wear, Annual Book of ASTM Standards, (1987) G 1-72.

- ASTM, Standard Practice for conducting potentiodynamic polarization resistance measurements, Annual Book of Standards, (1991) G 59-91.
- ASTM, Standard Practice for Laboratory Immersion Corrosion Testing of Metals, Annual Book of Standards, (1990) G 31-72.
- Becke, A.D., "Density-Functional Exchange-energy Approximation with correct Asymptotic Behaviour," *Physical Review A*, **38** (1988) 3098-3100.
- Becke, A.D., "Density-Functional Thermochemistry. III. The Role of Exact Exchange," *The Journal of chemical physics*, **98** (1993) 5648-5652.
- Behpour, M., Ghoreishi, S.M., Soltani, N., Salavati-Niasari, M., Hamadanian, M., Gandomi, A., "Electrochemical and theoretical investigation on the corrosion inhibition of mild steel by thiosalicylaldehyde derivatives in hydrochloric acid solution," *Corrosion Science*, **50** (2008) 2172-2181.

- Bentiss, F., Jama, C., Mernari, B., El Attari, H., El Kadi, L., Lebrini, M., Lagrenée, M.,
 "Corrosion control of mild steel using 3, 5-bis (4-methoxyphenyl)-4-amino-1, 2,
 4-triazole in normal hydrochloric acid medium," *Corrosion Science*, **51** (2009) 1628-1635.
- Bentiss, F., Lagrenee, M., "Heterocyclic Compounds as Corrosion Inhibitors for Mild Steel in Hydrochloric Acid Medium-Correlation between Electronic Structure and Inhibition Efficiency," *Journal of Materials and Environmental Science*, 2 (2011) 13-17.
- Bentiss, F., Lagrenee, M., Traisnel, M., Hornez, J.C., "The corrosion inhibition of mild steel in acidic media by a new triazole derivative," *Corrosion Science*, 41 (1999) (a) 789-803.
- Bentiss, F., Mernari, B., Traisnel, M., Vezin, H., Lagrenée, M., "On the relationship between corrosion inhibiting effect and molecular structure of 2,5-bis(n-pyridyl)-1,3,4-thiadiazole derivatives in acidic media: Ac impedance and DFT studies," *Corrosion Science*, **53** (2011) 487-495.
- Bentiss, F., Traisnel, M., Gengembre, L., Lagrenée, M., "A new triazole derivative as inhibitor of the acid corrosion of mild steel: electrochemical studies, weight loss determination, SEM and XPS," *Applied surface science*, **152** (1999) (b) 237-249.
- Bentiss, F., Traisnel, M., Gengembre, L., Lagrenée, M., "Inhibition of acidic corrosion of mild steel by 3, 5-diphenyl-4H-1, 2, 4-triazole," *Applied Surface Science*, 161 (2000) 194-202.
- Boumhara, K., Tabyaoui, M., Jama, C., Bentiss, F., "Artemisia Mesatlantica essential oil as green inhibitor for carbon steel corrosio n in 1M HCl solution: Electrochemical and XPS investigations," *Journal of Industrial and Engineering Chemistry*, **29** (2015) 146-155.
- Caliskan, N., Akbas, E., "The inhibition effect of some pyrimidine derivatives on austenitic stainless steel in acidic media," *Materials Chemistry and Physics*, **126** (2011) 983-988.
- Cesiulis, H., Tsyntsaru, N., Ramanavicius, A., Ragoisha, G., "The Study of Thin Films by Electrochemical Impedance Spectroscopy," *In Nanostructures and Thin Films for Multifunctional Applications*, Springer International Publishing, (2016) 3-42.
- Chaitra, T.K., Mohana, K.N., Tandon, H.C., "Study of New Thiazole Based Pyridine Derivatives as Potential Corrosion Inhibitors for Mild Steel: Theoretical and Experimental Approach," http://dx.doi.org/10.1155/2016/9532809.
- Chattaraj, P.K., Lee, H., Parr, R.G., "HSAB principle," Journal of the American Chemical Society, **113** (1991) 1855-1856.

- Chevalier, M., Robert, F., Amusant, N., Traisnel, M., Roos, C., Lebrini, M., "Enhanced corrosion resistance of mild steel in 1 M hydrochloric acid solution by alkaloids extract from Aniba rosaeodora plant: Electrochemical, phytochemical and XPS studies," *Electrochimica Acta*, **131** (2014) 96-105.
- Confederations of Indian Industry, 1st Global Corrosion Summit, New Delhi, India, 2011.
- Cruz, J., Martinez, R., Genesca, J., Garcia-Ochoa, E., "Experimental and theoretical study of 1-(2-ethylamino)-2-methylimidazoline as an inhibitor of carbon steel corrosion in acid media," *Journal of Electroanalytical Chemistry*, **566** (2004) 111-121.
- Damaskin, B.B., Petrii, O.A., Batrakov, V.V., Adsorption of Organic Compounds on Electrodes, New York, Plenum Press, 1971.
- Dandia, A., Gupta, S.L., Singh, P., Quraishi, M.A., "Ultrasound-Assisted Synthesis of Pyrazolo[3,4-b]pyridines as Potential Corrosion Inhibitors for Mild Steel in 1.0 M HCl," ACS Sustainable Chemistry & Engineering, 1 (2013) 1303-1310.
- Daoud, D., Douadi, T., Hamani, H., Chafaa, S., Al-Noaimi, M., "Corrosion inhibition of mild steel by two new S-heterocyclic compounds in 1 M HCl: Experimental and computational study," *Corrosion Science*, **94** (2015) 21-37.
- Dasami, P.M., Parameswari, K., Chitra, S., "Corrosion inhibition of mild steel in 1M H₂ SO₄ by thiadiazole Schiff bases," *Measurement*, **69** (2015) 195-201.
- Deyanov, A.B., Niyazov, R.K., Nazmetdivov, F.Y., Syropyatov, B.Y., Kolla, V.E., Konshin, M.E., "Synthesis and Biological activity of amides and nitriles of 2 arylamino -5-carboxy(carbethoxy)-6-methylnicotinic acids and 1-aryl-6carbethoxy-7-methyl-4-oxo-1,4-dihydropyrido[2,3-d]pyrimidines," *Pharmaceutical Chemistry Journal*, 25 (1991) 248-250.
- Ebenso, E.E., Kabanda, M.M., Murulana, L.C., Singh, A.K., Shukla, S.K., "Electrochemical and Quantum Chemical Investigation of Some Azine and Thiazine Dyes as Potential Corrosion Inhibitors for Mild Steel in Hydrochloric Acid Solution," *Industrial & Engineering Chemistry Research*, **51** (2012) 12940-12958.
- Ebenso, E.E., Obot, I.B., Murulana, L.C., "Quinoline and its Derivatives as Effective Corrosion Inhibitors for Mild Steel in Acidic Medium," *International Journal of Electrochemical Science*, **5** (2010) 1574-1586.
- Fontana, M.G., "Corrosion engineering," Tata McGraw-Hill Education, 2005.
- Fontana, M.G., "Corrosion principles, Corrosion Engineering," McGraw-Hill, Boston, 1986.
- Fontana, M.G., Greene, N.D., "Corrosion Engineering," 2rd ed., McGraw-Hill, NY, 1984, pp. 297-304.

- Frisch, M.J., Trucks, G.W., Schlegel, H.B., Scuseria, G.E., Robb, M.A., Cheeseman, J.R., Scalmani, G., Barone, V., Mennucci, B., Petersson, G.A., Gaussian 09, Revision D.01; Gaussian, Inc.: Wallingford CT, (2009).
- Gece, G., "The use of quantum chemical methods in corrosion inhibitor studies," *Corrosion Science*, **50** (2008) 2981-2992.
- Gomez, B., Likhanova, N.V., Dominguez, M.A., Martinez-Palou, R., Vela, A., Gazquez, J.L., "Quantum Chemical Study of the Inhibitive Properties of 2-Pyridyl-Azoles," *The Journal of Physical Chemistry B*, **110** (2006) 8928-8934.
- Gomma, G.K., "Corrosion inhibition of steel by benzotriazole in sulphuric acid," *Materials chemistry and physics*, **55** (1998) 235-240.
- Granese, S.L., Rosales, B.M., Oviedo, C., Zerbino, J.O., "The inhibition action of heterocyclic nitrogen organic compounds on Fe and steel in HCl media, *Corrosion science*, **33** (1992) 1439-1453.
- Grossi, G., Braccio, D.M., Roma, G., Tognolini, M., Barocelli, E., "1,8-Naphthyridines V. Novel N-substituted 5-amino-N,N-diethyl-9-isopropyl [1,2,4]triazolo[4,3-a] [1,8]naphthyridine-6-carboxamides, as Potent Anti-inflammatory and/or Analgesic Agents Completely Devoid of Acute Gastrolesivity," *European Journal* of *Medicinal Chemistry*, 40 (2005) 155-165.
- Guo, L., Zhu, S., Zhang, S., "Experimental and theoretical studies of benzalkonium chloride as an inhibitor for carbon steel corrosion in sulfuric acid," *Journal of Industrial and Engineering Chemistry*, **24** (2015) 174-180.
- Hamani, H., Douadi, T., Al-Noaimi, M., Issaadi, S., Daoud, D., Chafaa, S., "Electrochemical and quantum chemical studies of some azomethine compounds as corrosion inhibitors for mild steel in 1 M hydrochloric acid," *Corrosion Science*, 88 (2014) 234-245.
- Hameed, A.M.A., "Rapid Synthesis of 1,6-naphthyridines by Grindstone Chemistry," *Environmental Chemistry Letters*, **13** (2015) 125-129.
- Insuasty, B., Becerra, D., Quiroga, J., Abonia, R., Nogueras, M., Cobo, J., "Microwave-Assisted Synthesis of pyrimido [4, 5-b][1, 6] naphthyridin-4 (3H)-ones with Potential Antitumor Activity," *European Journal* of *Medicinal Chemistry*, 60 (2013) 1-9.
- Issaadi, S., Douadi, T., Zouaoui, A., Chafaa, S., Khan, M.A., Bouet, G., "Novel thiophene symmetrical Schiff base compounds as corrosion inhibitor for mild steel in acidic media," *Corrosion Science*, **53** (2011) 1484-1488.
- Jacobson, G., Koch, G., Moghissi, O., Kroon, D., "NACE International's IMPACT Breaks New Ground in the Study of Corrosion Management," (2016) 28-32.

- Javanshir, S., Safari, M., "A new catalyst-free microwave-assisted one-pot four component synthesis of 1,4-dihydroquinolines in aqueous media," Proceedings of the 14th Int. Electron., Conf. Synth. Org. Chem., Sciforum Electronic Conference Series c012, 14, 2010.
- ji, G., Shukla, S.K., Dwivedi, P., Sundaram, S., Prakash, R., "Inhibitive Effect of Argemone mexicana Plant Extract on Acid Corrosion of Mild Steel," *Industrial & Engineering Chemistry Research*, **50** (2011) 11954-11959.
- John, S., Joseph, A., "Electro analytical, surface morphological and theoretical studies on the corrosion inhibition behavior of different 1, 2, 4-triazole precursors on mild steel in 1M hydrochloric acid," *Materials Chemistry and Physics*, **133** (2012) 1083-1091.
- Juttner, K., "Electrochemical impedance spectroscopy (EIS) of corrosion processes on inhomogeneous surfaces," *Electrochimica Acta*, **35** (1990) 1501-1508.
- Keri, R.S., Patil, S.A., "Quinoline: a promising antitubercular target," *Biomedicine & Pharmacotherapy*, **68** (2014) 1161-1175.
- Khadiri, A., Saddik, R., Bekkouchea, K., Aouniti, A., Hammouti, B., Benchat, N., Bouachrinec, M., Solmaz, R., "Gravimetric, electrochemical and quantum chemical studies of some pyridazine derivatives as corrosion inhibitors for mild steel in 1 M HCl solution," *Journal of the Taiwan Institute of Chemical Engineers*, **000** (2015) 1-13.
- Khaled, K.F., "Monte Carlo simulations of corrosion inhibition of mild steel in 0.5 M sulphuric acid by some green corrosion inhibitors," *Journal of Solid State Electrochemistry*, **13** (2009) 1743-1756.
- Khaled, K.F., "The inhibition of benzimidazole derivatives on corrosion of iron in 1 M HCl solutions," *Electrochimica Acta*, **48** (2003) 2493-2503.
- Koopmans, T., "Über die Zuordnung von Wellenfunktionen und Eigenwerten zu den einzelnen Elektronen eines Atoms," *Physica*, **1** (1934) 104-113.
- Kosari, A., Moayed, M.H., Davoodi, A., Parvizi, R., Momeni, M., Eshghi, H., Moradi, H., "Electrochemical and quantum chemical assessment of two organic compounds from pyridine derivatives as corrosion inhibitors for mild steel in HCl solution under stagnant condition and hydrodynamic flow," *Corrosion science*, **78** (2014) 138-150.
- Kumar, A.M., Babu, R.S., Obot, I.B, Gasem, Z.M., "Fabrication of Nitrogen Doped Graphene Oxide Coatings: Experimental and Theoretical Approach for Surface Protection," *RSC Advances*, 5 (2015) 19264 -19272.
- Kumari, P., Shetty, P., Rao, S.A., "Corrosion Inhibition Effect of 4-Hydroxy-N'-[(E)-(1H-indole-2-ylmethylidene)] Benzohydrazide on Mild Steel in Hydrochloric Acid Solution," *International Journal of Corrosion*, (2014).

- Lebrini, M., Lagrenee, M., Vezin, H., Gengembre, L., Bentiss, F., "Electrochemical and Quantum Chemical Studies of New Thiadiazole Derivatives Adsorption on Mild Steel in normal Hydrochloric Acid Medium," *Corrosion Science*, **47** (2005) 485-505.
- Lebrini, M., Robert, F., Roos, C., "Adsorption Properties and Inhibition of C38 Steel Corrosion in Hydrochloric Solution by Some Indole Derivates: Temperature Effect, Activation Energies, and Thermodynamics of Adsorption," *International Journal of Corrosion*, (2013).
- Lee, C., Yang, W., Parr, R.G., "Development of the Colle-Salvetti Correlation-energy Formula into a Functional of the Electron Density," *Physical Review B*, **37** (1988) 785-789.
- Levine, I.N., "Quantum chemistry". 5.th., 1991.
- Li, X., Deng, S., Fu, H., "Three pyrazine derivatives as corrosion inhibitors for steel in 1.0 M H₂SO₄ solution," *Corrosion Science*, **53** (2011) (a) 3241-3247.
- Li, X., Deng, S., Fu, H., "Triazolyl blue tetrazolium bromide as a novel corrosion inhibitor for steel in HCl and H₂SO₄ solutions," *Corrosion Science*, **53** (2011) (b) 302-309.
- Lu, T., Chen, F., "Multiwfn: a Multifunctional Wavefunction Analyzer," Journal of Computational Chemistry, 33 (2012) (a) 580-592.
- Lu, T., Chen, F., "Quantitative Analysis of Molecular Surface Based on Improved Marching Tetrahedra algorithm," *Journal of* Molecular *Graphics and Modelling*, **38** (2012) (b) 314-323.
- Madhankumar, A., Thangavel, E., Ramakrishna, S., Obot, I.B., Jung, H.C., Shin, K.S., Gasem, Z.M., Kim, H., Kim, D.E., "Multi-functional Ceramic Hybrid Coatings on Biodegradable AZ31 Mg Implants: Electrochemical, Tribological and Quantum chemical aspects for Orthopaedic Applications," *RSC Advances*, 4 (2014) 24272-24285.
- Madkour, L.H., Elroby, S.K., "Inhibitive properties, thermodynamic, kinetics and quantum chemical calculations o f polydentate Schiff base compounds as corrosion inhibitors for iron in acidic and alkaline media," *International Journal of Industrial Chemistry*, **6** (2015) 165-184.
- Martinez, S., "Inhibitory Mechanism of Mimosa Tannin using Molecular Modeling and Substitutional Adsorption Isotherms," *Materials Chemistry and Physics*, 77 (2003) 97-102.
- McCafferty, E., Introduction to corrosion science, Springer Science & Business Media, 2010.

- Mert, B.D., Yüce, A.O., Kardas, G., Yazıcı, B., "Inhibition effect of 2-amino-4methylpyridine on mild steel corrosion: Experimental and theoretical investigation," *Corrosion Science*, **85** (2014) 287-295.
- Mistry, B.M., Jauhari, S., "Synthesis and evaluation of some quinoline Schiff bases as a corrosion inhibitor for mild steel in 1 N HCl," *Research on Chemical Intermediates*, **39** (2013) 1049-1068.
- Mourya, P., Banerjee, S., Rastogi, R.B., Singh, M.M., "Inhibition of Mild Steel Corrosion in Hydrochloric and Sulfuric Acid Media Using a Thiosemicarbazone Derivative," *Industrial & Engineering Chemistry Research*, **52** (2013) 12733-12747.
- Mourya, P., Banerjee, S., Singh, M.M., "Corrosion Inhibition of Mild Steel in Acidic Solution by Tagetes erecta (Marigold flower) Extract as a Green Inhibitor," *Corrosion Science*, 85 (2014) 352-363.
- Mourya, P., Singh, P., Tewari, A.K., Rastogi, R.B., Singh, M.M., "Relationship between structure and inhibition behaviour of quinolinium salts for mild steel corrosion: Experimental and theoretical approach," *Corrosion Science*, 95 (2015) 71-87.
- Mousavi, M., Baghgoli, T., "Application of interaction energy in quantitative structureinhibition relationship study of some benzenethiol derivatives on copper corrosion," *Corrosion Science*, **105** (2016) 170-176.
- Murulana, L.C., Singh, A.K., Shukla, S.K., Kabanda, M.M., Ebenso, E.E., "Experimental and Quantum Chemical Studies of SomeBis(trifl uoromethylsulfonyl) Imide Imidazolium-Based Ionic Liquidsas Corrosion Inhibitors for Mild Steel in Hydrochloric Acid Solution," *Industrial & Engineering Chemistry Research*, **51**, (2012) 13282-13299.
- Musa, A.Y., Jalgham, R.T.T., Mohamad, A.B., "Molecular dynamic and quantum chemical calculations for phthalazine derivatives as corrosion inhibitors of mild steel in 1 M HCl," *Corrosion Science*, **56** (2012) 176-183.
- NACE, International Basic Corrosion Course Handbook, p. 2:9.
- Noor El-Din, M.R., Khamis, E.A., "Utilization of sulfidated poly (acrylamide-vinyl acetate) as a new corrosion inhibitor for carbon steel in acidic media," *Journal of Industrial and Engineering Chemistry*, **24** (2015) 342-350.
- Obot, I.B., Obi-Egbedi, N.O., "Adsorption properties and inhibition of mild steel corrosion in sulphuric acid solution by ketoconazole: experimental and theoretical investigation," *Corrosion Science*, **52** (2010) 198-204.
- Obot, I.B., Umoren, S.A., Gasem, Z.M., Suleiman, R., El Ali, B., "Theoretical prediction and electrochemical evaluation of vinylimidazole and allylimidazole as corrosion inhibitors for mild steel in 1 M HCl," *Journal of Industrial and Engineering Chemistry*, **21** (2015) 1328-1339.

- Olasunkanmi, L.O., Obot, I.B., Kabanda, M.M., Ebenso, E.E., "Some Quinoxalin-6-yl Derivatives as Corrosion Inhibitors for Mild Steel in Hydrochloric Acid: Experimental and Theoretical Studies," *The Journal of Physical Chemistry C*, **119** (2015) 16004-16019.
- Ostovari, A., Hoseinieh, S.M., Peikari, M., Shadizadeh, S.R., Hashemi, S.J., "Corrosion inhibition of mild steel in 1 M HCl solution by henna extract: A comparative study of the inhibition by henna and its constituents (Lawsone, Gallic acid, α-d-Glucose and Tannic acid)," *Corrosion Science*, **51** (2009) 1935-1949.
- Pearson, R.G., "Absolute Electronegativity and Hardness: Application to Inorganic Chemistry," *Inorganic Chemistry*, **27** (1988) 734-740.
- Pearson, R.G., "Hard and soft acids and bases, HSAB, part 1: Fundamental principles," *Journal* of *Chemical Education*, **45** (1968) 581-587.
- Pearson, R.G., "Hard and soft acids and bases," Journal of the American Chemical Society, 85 (1963) 3533-3539.
- Pourbaix, M., "Atlas of Electrochemical Equilibria in Aqueous Solutions, NACE International," Houston, Texas, 1974.
- Prachayasittikul, S., Worachartcheewan, A., Nantasenamat, C., Chinworrungsee, M., Sornsongkhram, N., Ruchirawat, S., Prachayasittikul, V., "Synthesis and structure reactivity relationship of 2-thiopyrimidine-4-one analogs as antimicrobial and anticancer agents, *European Journal of Medicinal Chemistry*," 46 (2011) 738-742.
- Qu, Q., Jiang, S., Bai, W., Li, L., "Effect of ethylenediamine tetraacetic acid disodium on the corrosion of cold rolled steel in the presence of benzotriazole in hydrochloric acid," *Electrochimica acta*, **52** (2007) 6811-6820.
- Quraishi, M.A., Sardar, R., "Corrosion inhibition of mild steel in acid solutions by some aromatic oxadiazoles," *Materials chemistry and physics*, **78** (2003) 425-431.
- Quraishi, M.A., Sharma, H.K., "4-Amino-3-butyl-5-mercapto-1, 2, 4-triazole: a new corrosion inhibitor for mild steel in sulphuric acid," *Materials Chemistry and Physics*, **78** (2003) 18-21.
- Ramaganthan, B., Gopiraman, M., Olasunkanmi, L.O., Kabanda, M.M., Yesudass, S., Bahadur, I., Adekunle, A.S., Obot, I.B., Ebenso, E.E., "Synthesized Photo-crosslinking Chalcones as Novel Corrosion Inhibitors for Mild Steel in Acidic Medium: Experimental, Quantum Chemical and Monte Carlo Simulation Studies," *RSC Advances*, 5 (2015) 76675-76688.
- Ramesh, S.V., Adhikari, A.V., "N'-[4-(diethylamino) benzylidine]-3-{[8-(trifluoromethyl) quinolin-4-yl] thio} propano hydrazide) as an effective inhibitor of mild steel corrosion in acid media," *Materials Chemistry and Physics*, 115 (2009) 618-627.

- Ramya, K., Mohan, R., Joseph, A., "Adsorption and electrochemical studies on the synergistic interaction of alkyl benzimadazoles and ethylene thiourea pair on mild steel in hydrochloric acid," *Journal of the Taiwan Institute of Chemical Engineers*, 45 (2014) 3021-3032.
- Revie, R.W., Uhlig, H.H., Uhlig's corrosion handbook, John Wiley & Sons, 51, 2011.
- Revie, R.W., Corrosion and corrosion control, John Wiley & Sons, 2008.
- Rocha, J.C., Gomes, J.A.C.P., Elia, E.D., "Corrosion inhibition of carbon steel in hydrochloric acid solution by fruit peel aqueous extracts," *Corrosion Science*, 52 (2010) 2341-2348.
- Safari, J., Banitaba, S.H., Khalili, S.D., "Ultrasound-promoted an efficient method for one-pot synthesisof 2-amino-4,6-diphenylnicotinonitriles in water: A rapid procedure without catalyst," *Ultrasonics Sonochemistry*, **19** (2012) 1061-1069.
- Saha, S.K., Dutta, A., Ghosh, P., Sukul, D., Banerjee, P., "Adsorption and corrosion inhibition effect of Schiff base molecules on the mild steel surface in 1 M HCl medium: a combined experimental and theoretical approach," *Physical Chemistry Chemical Physics*, 17 (2015) 5679-5690.
- Sahoo, B.M., Ravi Kumar, B.V.V., Panda, J., Dinda, S.C., "Ecofriendly and Facile One Pot Multi component Synthe is of Thiopyrimidines under Microwave Irradiation," *Journal of Nanoparticles*, (2013), http://dx.doi.org/10.1155/2013/780786.
- Saliyan, V.R., Adhikari, A.V., "Quinolin-5-ylmethylene-3-{[8-(trifluoromethyl) quinolin-4-yl] thio} propanohydrazide as an effective inhibitor of mild steel corrosion in HCl solution," *Corrosion Science*, **50** (2008) 55-61.
- Sangeetha, Y., Meenakshi, S., Sundaram, C.S., "Corrosion mitigation of N-(2-hydroxy-3-trimethyl ammonium) propyl chitosan chloride as inhibitor on mild steel," *International journal of biological macromolecules*, **72** (2015) 1244-1249.
- Sasikumar, Y., Adekunle, A.S., Olasunkanmi, L.O., Bahadur, I., Baskar, R., Kabanda, M.M., Obot, I.B., Ebenso, E.E., "Experimental, quantum chemical and Monte Carlo simulation studies on the corrosion inhibition of some alkyl imidazolium ionic liquids containing tetrafluoroborate anion on mild steel in acidic medium," *Journal of Molecular Liquids*, **211** (2015) 105-118.
- Sastri, V.S., Corrosion inhibitors: principles and applications, 1998.
- Schmitt, G., "Application of inhibitors for acid media: report prepared for the european federation of corrosion working party on inhibitors," *British Corrosion Journal*, **19** (2013) 165-176.
- Schmitt, G., Bedbur, K., "Investigations on structural and electronic effects in acid inhibitors by AC impedance," *Materials and Corrosion*, **36** (1985) 273-278.

- Shaban, S.M., Aiad, I., El-Sukkary, M.M., Soliman, E.A., El-Awady, M.Y., "Inhibition of mild steel corrosion in acidic medium by vanillin cationic surfactants," *Journal* of Molecular Liquids, 203 (2015) 20-28.
- Shukla, S.K., Quraishi, M.A., "Cefotaxime sodium: A new and efficient corrosion inhibitor for mild steel in hydrochloric acid solution," *Corrosion Science*, 51 (2009) 1007-1011.
- Singh, A.K., "Inhibition of Mild Steel Corrosion in Hydrochloric Acid Solution by 3-(4-((Z)-Indolin-3-ylideneamino)phenylimino)indolin-2-one," *Industrial & Engineering Chemistry Research*, **51** (2012) 3215-3223.
- Singh, A.K., Quraishi, M.A., "The effect of some bis-thiadiazole derivatives on the corrosion of mild steel in hydrochloric acid," *Corrosion Science*, **52** (2010) 1373-1385.
- Singh, P., Quraishi, M.A., Ebenso, E.E. "Thiourea-formaldehyde polymer a new and effective corrosion inhibitor for mild steel in hydrochloric acid solution," *International Journal of Electrochemical Science*, 9 (2014) (b) 4900-4912.
- Singh, P., Quraishi, M.A., Ebenso, E.E., "Microwave assisted green synthesis of bisphenol polymer containing piperazine as a corrosion inhibitor for mild steel in 1 M HCl," *International Journal of Electrochemical Science*, 8 (2013) 10890-108902.
- Singh, P., Quraishi, M.A., Gupta, S.L., Dandia, A., "Investigation of the corrosion inhibition effect of 3-methyl-6-oxo-4-(thiophen-2-yl)-4,5,6,7-tetrahydro-2Hpyrazolo[3,4 b]pyridine-5-carbonitrile (TPP) on mild steel in hydrochloric acid," *Journal of Taibah University for Science*, **10** (2015) 139-147.
- Singh, P., Singh, A., Quraishi, M.A., "Inhibition Effect of 1,3,5-tri-p-tolyl-1,3,5triazene on the Corrosion of Brass in 0.5 M HCl Solution," *Research on Chemical Intermediates*, 40 (2014) (a) 595-604.
- Solmaz, R., "Investigation of Adsorption and Corrosion Inhibition of Mild Steel in Hydrochloric Acid Solution by 5-(4-Dimethylaminobenzylidene) Rhodanine," *Corrosion Science*, **79** (2014) (a) 169-176.
- Solmaz, R., "Investigation of Corrosion Inhibition Mechanism and Stability of Vitamin B1 on Mild Steel in 0.5 M HCl Solution," *Corrosion Science*, **81** (2014) (b) 75-84.
- Solomon, M.M., Umoren, S.A., Udosoro, I.I., Udoh, A.P., "Inhibitive and adsorption behaviour of carboxymethyl cellulose on mild steel corrosion in sulphuric acid solution," *Corrosion science*, **52** (2010) 1317-1325.
- Srivastava, V., Banerjee, S., Singh, M.M., "Inhibitive Effect of Polyacrylamide Grafted with Fenugreek Mucilage on Corrosion of Mild Steel in 0.5 M H₂SO₄ at 35 C," *Journal of applied polymer science*, **116** (2010) 810-816.

- Stern, M., "A method for determining corrosion rates from linear polarization data," *Corrosion*, **14** (1958) 60-64.
- Stern, M., Geary, A.L., "Electrochemical polarization I. A theoretical analysis of the shape of polarization curves," *Journal of the electrochemical society*, **104** (1957) 56-63.
- Subramaniam, G., Balasubramanian, K., Sridhar, P., "1,1'-Alkylene bis-pyridinium compounds as pickling inhibitors," *Corrosion Science*, **30** (1990) 1019-1023.
- Sudheer, Quraishi, M.A., "2-Amino-3, 5-dicarbonitrile-6-thio-pyridines: new and effective corrosion inhibitors for mild steel in 1 M HCl," *Industrial & Engineering Chemistry Research*, **53** (2014) 2851-2859.
- Sudheer, Quraishi, M.A., "Electrochemical and theoretical investigation of triazole derivatives on corrosion inhibition behavior of copper in hydrochloric acid medium," *Corrosion Science*, **70** (2013) 161-169.
- Talbot, D.E.J., Talbot, J.D.R., Corrosion science and technology, CRC press, 2007.
- Tang, L., Li, X., Si, Y., Mu, G., Liu, G., "The synergistic inhibition between 8hydroxyquinoline and chloride ion for the corrosion of cold rolled steel in 0.5 M sulfuric acid," *Materials chemistry and physics*, 95 (2006) 29-38.
- Tang, Y., Zhang, F., Hu, S., Cao, Z., Wu, Z., Jing, W., "Novel benzimidazole derivatives as corrosion inhibitors of mild steel in the acidic media. Part I: Gravimetric, electrochemical, SEM and XPS studies," *Corrosion Science*, 74 (2013) 271-282.
- Tao, Z., Zhang, S., Li, W., Hou, B., "Corrosion inhibition of mild steel in acidic solution by some oxo-triazole derivatives," *Corrosion science*, **51** (2009) 2588-2595.
- Tehrani, M.K., Niazi, A., Quantum Chemical Studies on the Corrosion Inhibition of Some Hector Bases on Mild Steel in Acidic Medium," Oriental Journal Of Chemistry, 31 (2015) 423-429.
- Tomashov, N.D., Passivity and protection of metals against corrosion, Springer Science & Business Media, 2012.
- Tourabi, M., Nohair, K., Traisnel, M., Jama, C., Bentiss, F., "Electrochemical and XPS studies of the corrosion inhibition of carbon steel in hydrochloric acid pickling solutions by 3, 5-bis (2-thienylmethyl)-4-amino-1, 2, 4-triazole," *Corrosion Science*, 75 (2013) 123-133.

Trethewey, K.R., J. Chamberlain, Corrosion for science and engineering, 1995.

Uhlig, H.H., "Corrosion and Corrosion Control," 2nd ed., John Wiley & Sons Inc., New York 1971.

- Umoren, S.A., Obot, I.B., Israel, A.U., Asuquo, P.O., Solomon, M.M., Eduok, U.M., Udoh, A.P., "Inhibition of Mild Steel Corrosion in Acidic Medium using Coconut Coir Dust Extracted from Water and Methanol as Solvents," *Journal of Industrial* and Engineering Chemistry, **20** (2014) 3612–3622.
- Criado, V., Sáez, J.A., Lhiaubet-Vallet, V., Consuelo Cuquerella, M., Miranda, M.A., "Photophysical properties of 5-substituted 2-thiopyrimidines," *Photochemical & Photobiological Sciences*, **12** (2013) 1460-1465.
- Verma, C., Ebenso, E.E., Bahadur, I., Obot, I.B., Quraishi, M.A., "5-(Phenylthio)-3Hpyrrole-4-carbonitriles as effective corrosion inhibitors for mild steel in 1 M HCI: Experimental and theoretical investigation," *Journal of Molecular Liquids*, **212** (2015) (b) 209-218.
- Verma, C., Quraishi, M.A., Olasunkanmi, L.O., Ebenso, E.E., "L Proline Promoted Synthesis of 2-amino-4- arylquinoline-3-carbonitriles as Sustainable Corrosion Inhibitors for Mild Steel in 1 M HCl: Experimental and Computational Studies," *RSC Advnces*, 5 (2015) (a) 85417-85430.
- Verma, C.B., Quraishi, M.A., Singh, A., "2-Aminobenzene-1, 3-dicarbonitriles as green corrosion inhibitor for mild steel in 1 M HCl: electrochemical, thermodynamic, surface and quantum chemical investigation," *Journal of the Taiwan Institute of Chemical Engineers*, 000 (2014) 1-11.
- Verma, C.B., Singh, A., Pallikonda, G., Chakravarty, M., Quraishi, M.A., Bahadur, I., Ebenso, E.E., "Aryl sulfonamidomethylphosphonates as new class of green corrosion inhibitors for mild steel in 1M HCl: Electrochemical, surface and quantum chemical investigation," *Journal of Molecular Liquids*, **209** (2015) (c) 306-319.
- Wade, L.G., "Organic Chemistry," 6th ed., Pearson Prentice Hall: Upper Saddle River, NJ, 2006.
- Wahdan, M.H., Gomma, G.K., "Effect of copper cation on electrochemical behaviour of steel in presence of imidazole in acid medium" *Materials chemistry and physics*, **47** (1997) 176-183.
- Wranglén, G., "An introduction to corrosion and protection of metals," *Anti-Corrosion Methods and Materials*, **19** (1972) 5-5.
- Wu, H., Lin, W., Wan, Y., Xin, H., Shi, D., Shi, Y., Yuan, R., Bo, R., Yin, W., "Silica Gel-Catalyzed One-Pot Syntheses in Water and Fluorescence Properties Studies of 5-Amino-2-aryl-3*H*-chromeno[4,3,2-*de*][1,6]naphthyridine-4-carbonitriles and 5-Amino2-aryl-3*H*-quinolino[4,3,2-*de*][1,6]naphthyridine-4-carbonitriles," *Journal of Combinatorial Chemistry*, **12** (2010) 31–34.
- Yadav, D.K., Chauhan, D.S., Ahamad, I., Quraishi, M.A., "Electrochemical Behavior of Steel/Acid Interface: Adsorption and Inhibition Effect of Oligomeric Aniline," *RSC Advances*, 3 (2013) (a) 632-646.

- Yadav, D.K., Quraishi, M.A., "Application of Some Condensed Uracils as Corrosion Inhibitors for Mild Steel: Gravimetric, Electrochemical, Surface Morphological, UV–Visible and Theoretical Investigations," *Industrial & Engineering Chemistry Research*, **51** (2012) (b) 14966-14979.
- Yadav, D.K., Quraishi, M.A., "Electrochemical investigation of Substituted Pyranopyrazoles Adsorption on Mild Steel in Acid Solution," *Industrial & Engineering Chemistry Research*, **51** (2012) (a) 8194-8210.
- Yadav, M., Behera, D., Kumar, S., Sinha, R.R., "Experimental and Quantum Chemical Studies on the Corrosion Inhibition Performance of Benzimidazole Derivatives for Mild Steel in HCl," *Industrial & Engineering Chemistry Research*, **52** (2013) (b) 6318-6328.
- Yadav, M., Kumar, S., Sinha, R.R., Bahadur, I., Ebenso, E.E., "New Pyrimidine Derivatives as Efficient Organic Inhibitors on Mild Steel Corrosion in Acidic Medium: Electrochemical, SEM, EDX, AFM and DFT Studies," *Journal of Molecular Liquids*, 211 (2015) 135-145.
- Yan, Y., Wang, X., Zhang, Y., Wang, P., Zhang, J., "Theoretical Evaluation of Inhibition Performance of Purine Corrosion Inhibitors," *Molecular Simulation*, 39 (2013) 1034-1041.
- Yang, W., Mortier, W.J., "The Use of Global and Local Molecular Parameters for the Analysis of the Gas-Phase Basicity of Amines," *Journal of the American Chemical Society*, **108** (1986) 5708-5711.
- Yilmaz, N., Fitoz, A., Ergun, Ü., Emregül, K.C., "A combined electrochemical and theoretical study into the effect of 2-((thiazole-2-ylimino)methyl)phenol as a corrosion inhibitor for mild steel in a highly acidic environment," *Corrosion Science*, **111** (2016) 110-120.
- Zhang, K., Xu, B., Yang, W., Yin, X., Liu, Y., Chen, Y., "Halogen-substituted imidazoline derivatives as corrosion inhibitors for mild steel in hydrochloric acid solution," *Corrosion Science*, **90** (2015) (a) 284-295.
- Zhang, L., He, Y., Zhou, Y., Yang, R., Yang, Q., Qing, D., Niu, Q., "A novel imidazoline derivative as corrosion inhibitor for P110 carbon steel in hydrochloric acid environment," *Petroleum*, 1 (2015) (b) 237-243.
- Zhua, Y., Zhuanga, J., Zeng, X., "Mechanism of (NH₄)S₂O₈ to enhance the anticorrosion performance of Mo Ce inhibitor on X80 steel in acid solution," *Applied Surface Science*, **313** (2014) 31-40.

LIST OF PUBLICATIONS

[1] **Priyanka Singh**, M.M. Janusik, P. Slovensky, M.A. Quraishi, "Nicotinonitriles as green corrosion inhibitors for mild steel in hydrochloric acid: electrochemical, computational and surface morphological studies," *Journal of Molecular Liquids*, **220** (2016) 71-81.

[2] Priyanka Singh, E.E. Ebenso, L.O. Olasunkanmi, I.B. Obot, M.A. Quraishi, "Electrochemical, Theoretical and Surface Morphological Studies of Corrosion Inhibition Effect of Green Naphthyridine Derivatives on Mild Steel in Hydrochloric Acid," *Journal Physical Chemistry C*, **120** (2016) 3408–3419.

[3] Priyanka Singh, A. Dandia, S. L. Gupta, M. A. Quraishi, "Ultrasound-Assisted Synthesis of Pyrazolo[3,4-b]pyridines as Potential Corrosion Inhibitors for Mild Steel in 1.0 M HCl," *ACS Sustainable Chemistry Engineering*, **1** (2013) 1303 -1310.

[4] **Priyanka Singh**, V. Srivastava, M.A. Quraishi, "Novel quinoline derivatives as green corrosion inhibitors for mild steel in acidic medium: Electrochemical, SEM, AFM, and XPS studies," *Journal of Molecular Liquids*, **216** (2016) 164–173.

[5] Priyanka Singh, M.A. Quraishi, "Corrosion inhibition of mild steel using Novel Bis Schiff's Bases as corrosion inhibitor: Electrochemical and Surface measurement," *Measurement*, **86** (2016) 114-124.

[6] Priyanka Singh, A. Singh, M.A. Quraishi, "Thiopyrimidine derivatives as new and effective corrosion inhibitors for mild steel in hydrochloric acid: Electrochemical and quantum chemical studies," *Journal of the Taiwan Institute of Chemical Engineers*, **000** (2015) 1–14.

[7] Priyanka Singh, M.A. Quraishi, S.L. Gupta, A. Dandia, "Investigation of the corrosion inhibition effect of 3-methyl-6-oxo-4-(thiophen-2-yl)-4,5,6,7-tetrahydro-2Hpyrazolo[3,4-b]pyridine-5 carbonitrile (TPP) on mild steel in hydrochloric acid," *Journal of Taibah University for Science*, **10** (2016) 139-147.

[8] Priyanka Singh, A. Singh, M. A. Quraishi, "Inhibition effect of 1,3,5-tri-p-tolyl-1,3,5-triazene on the corrosion of brass in 0.5 M HCl solution," *Research on Chemical Intermediates*, **40** (2014) 595-604.

[9] Priyanka Singh, A. Singh, M.A. Quraishi, E.E. Ebenso, "Cetirizine: A New and Effective Corrosion Inhibitor for Mild Steel in 1 M HCl solution," *International Journal* of *Electrochemical Science*, **7** (2012) 7065-7079.

[10] Priyanka Singh, A. Singh, M.A. Quraishi, E.E. Ebenso, "Experimental and Theoretical Investigation for Inhibition Action and Adsorption Behaviour of Montelukast Sodium in 1 M HCl Solution," *International Journal* of *Electrochemical Science*, 7 (2012) 8612-8626.

[11] Priyanka Singh, M.A. Quraishi, E.E. Ebenso, "Investigation of Gliclazide Drug as Novel Corrosion Inhibitor for Mild Steel in 1 M HCl Solution," *International Journal* of *Electrochemical Science*, **7** (2012) 12270-12282.

[12] Priyanka Singh, M.A. Quraishi, E.E. Ebenso, "Thiourea-Formaldehyde Polymer a New and Effective Corrosion Inhibitor for Mild Steel in Hydrochloric Acid Solution," *International Journal* of *Electrochemical Science*, **9** (2014) 4900 – 4912.

[13] Priyanka Singh, M.A. Quraishi, E.E. Ebenso, "Microwave Assisted Green Synthesis of Bis-Phenol Polymer Containing Piperazine as a Corrosion Inhibitor for Mild Steel in 1M HCl," *International Journal* of *Electrochemical Science*, **8** (2013) 10890-10902.

LIST OF CONFERENCES

[1] Ultrasonic Assisted synthesis of 4-(4-hydroxyphenyl)-3-methyl-6-oxo-4,5,6,7-tetrahydro-2H-pyrazolo[3,4-b]pyridine-5-carbonitrile (APH) and its Investigation as corrosion inhibitor for mild steel in acid medium, **IIM NMD-ATM 2013 (Poster)**.

[2] Investigation of the corrosion inhibition effect of 3-methyl-6-oxo-4-(thiophen-2-yl)-4,5,6,7-tetrahydro-2H-pyrazolo[3,4-b]pyridine-5-carbonitrile (TPP) on Mild Steel in Hydrochloric acid, **Corrosion Conference & Expo 2014 (Oral).**

[3] Corrosion inhibition effect of 2-amino-7-hydroxy-4-phenyl-1,4-dihydroquinoline-3carbonitrile for mild steel in hydrochloric acid solution, **ICMFA - 2015 (Poster).**

[4] 2-amino-4, 6-diphenylnicotinonitrile (ADN) as green corrosion inhibitor for mild steel in acidic medium: Electrochemical, SEM, AFM, and XPS studies, ICEMS-2016 (Poster).

[5] Pyridine derivative as green corrosion inhibitor for mild steel in acidic medium: Electrochemical, SEM, AFM, and XPS studies, **RAAS-2016 (Poster).**