REFERENCES

1. Shreir, L. L., Burstein, G. T. & Jarman, R. A. *Corrosion Control*, Third Edition, Butterworth-Heinemann (1994).

2. Cicek, V. & Bayan, A. *Corrosion Chemistry*, First Edition, Scrivener publishing (2011).

3. Bradford, S. A. *Corrosion Contr*ol, Second Edition , CASTI Publishing Inc. (2001).

4. Peter, M. & Peter, P. *Handbook of Hot-dip Galvanization*, First Edition, Wiley-VCH verlag GmbH & Co. (2011) .

5. Bockris, John, O.M., Khan. & Shahad, U. M. *Surface Electrochemistry: A Molecular Level Approach*, Springer US (1993).

6. Wagner, C. & Traud, W. On the interpretation of corrosion processes through the superposition of electrochemical partial processes and on the potential of mixed electrodes. *Corrosion* **62**, 844–855 (2006).

7. Landrum, R. J. *Fundamentals of Designing for Corrosion Control : A Corrosion Aid for the Designer*, Second Edition, NACE (1992).

8. Prion, D. L. *The Electrochemistry of Corrosion*, First Edition, NACE (1991).

9. Walsh, F. C.& Plectcher, D. *Industrial Electrochemistry*, Second Edition, Springer Netherlands (1990).

10. Hoar, T. P. *Report of the Committee on Corrosion and Protection : A Survey of Corrosion and Protection in the United Kingdom*, First Edition, H.M.S.O London (1971).

11. Bennett, L. H. *Economic Effects of Metallic Corrosion in the United States: A Report to the Congress by the National Bureau of Standards, NBS Special Publication*, U S Govt. Printing Office, Washington (1978).

12. Strehblow, H. H. & Marcus, P. *Corrosion Mechanisms in Theory and Practice*, Third Edition, CRC Press (2011).

13. Gellings, P. J. *Introduction to corrosion prevention and control*, First Edition, Delft University Press (1984).

14. Pierre, R. R. *Handbook of corrosion engineering*, Second Edition, Mc Graw Hill, New York (2012).

15. Ghali, E., Sastri, V. S. & Elboujdaini, M. *Corrosion prevention and protection: practical solutions*, First Edition, John Wiley & Sons, Ltd. (2007).

16. Kuruvilla, M. *Amino acid based green inhibitors for the corrosion of mild steel and copper in different media*, Ph.D Thesis, University of Calicut (2016).

17. Cramer, S. D. & Covino, B. S. Corrosion : *Fundementals, Testing, and Protection,*

First Edition, Vol. 13A, ASM International (2003).

18. Azim, S., Muralidharan, S., Iyer, S., Muralidharan, B. & Vasudevan, T. Synergistic influence of iodide ions on inhibition of corrosion of mild steel in H_2SO_4 by N-phenyl thiourea. *Br. Corros. J.* **33**, 297–301 (1998).

19. Subramanian, A., Natesan, M., Muralidharan, V. S., Balakrishnan, K. & Vasudevan, T. An overview: Vapor phase corrosion inhibitors. *Corrosion* **56**, 144–155 (2000).

20. Cramer, S. D. & Covino, B. S. *Corrosion : Fundamentals, Testing, and Protection*, First Edition, Vol. 13A, ASM International (2003).

21. Musa, A. Y., Jalgham Ramzi, T. T. & Mohamad, A. B. Molecular dynamic and quantum chemical calculations for phthalazine derivatives as corrosion inhibitors of mild steel in 1M HCl. *Corros. Sci.* **56**, 176–183 (2012).

22. Nataraja, S. E., Venkatesha, T. V. & Tandon, H. C. Computational and experimental evaluation of the acid corrosion inhibition of steel by tacrine. *Corros. Sci.* **60**, 214–223 (2012).

23. Cottis, R. A. & Shreir, L. L. *Shreir's Corrosion*, Fourth Edition, Elsevier, London, 2857-2889 (2010).

24. Cottis, R. A. & Shreir, L. L. *Shreir's Corrosion*, Fourt Edition, Elsevier, London, 3207-3229 (2010).

25. Bahadori, A. *Cathodic Corrosion Protection Systems A Guide for Oil and Gas Industries*, First Edition, Gulf Professional Publishing, Elsevier (2014).

26. Bard, A. J. & Faulkner, L. R. *Electrochemical Methods: Fundamentals and Applications*, Second Edition, Wiley (2004).

27. Xiao-ZiRiny, Y., Chaojie, S., & Haijiang, W. *Electrochemical Impedance Spectroscopy in PEM Fuel Cells*, First Edition, Springer-Verlag London (2010).

28. Hamdy Makhlouf, A. S., El-Shenawy, E. & El-Bitar, T. Electrochemical impedance spectroscopy study of the corrosion behavior of some niobium bearing stainless steels in 3.5% NaCl. *Int. J. Electrochem. Sci.* **1**, 171–180 (2006).

29. Haynes, G. S. *Laboratory Corrosion Tests and Standards*, First Edition, ASTM International (1985).

30. Rammelt, U. & Reinhard, G. Application of electrochemical impedance spectroscopy (EIS) for characterizing the corrosion-protective performance of organic coatings on metals. *Prog. Org. Coatings* **21**, 205–226 (1992).

31. Fontana, M. G. *Corrosion Engineering*, Third Edition, McGraw-Hill (1986).

32. Wagner, C., Traud, W. 'On the interpretation of corrosion processes through the superposition of electrochemical partial processes and on the potential of mixed electrodes,' with a perspective by F. Mansfeld. *Corrosion* **62**, 843–855 (2006).

33. Wandelt, K. *Encyclopedia of Interfacial Chemistry*, First Edition, Elsevier (2018).

34. Popov, B. N. *Corrosion Engineering Principles and Solved Problems*, First Edition, Elsevier (2015).

35. Kolotyrkin, Y. M. Electrochemical aspects of the corrosion of metals. *Prot. Met.* **11**, 635–644 (1975).

36. Babu, S. *Advances in Chemical Mechanical Planarization (CMP)*, First Edition, Woodhead Publishing (2016).

37. Lee, Y., Pan, J., Hathaway, R. B., & Barkey, M. E. *Fatigue Testing and Analysis: Theory and Practice*, First Edition, Butterworth-Heinemann, Elsevier (2005).

38. Loto, C. A. Electrochemical noise evaluation and data statistical analysis of stressed aluminium alloy in NaCl solution. *Alexandria Eng. J.* **57**, 1313–1321 (2018).

39. Rulph, C. & Donald, R. *Digital Signal Processing and Applications with the TMS320C6713 and TMS320C6416 DSK*, Second Edition, Wiley-IEEE Press, (2003).

40. Thomson, R. E. & Emery, W. J. *Data Analysis Methods in Physical Oceanography*, Third Edition, Elsevier Science (2014).

41. Begum, A. S., Mallika, J. & Gayathri, P. Corrosion inhibition property of some 1, 3, 4- Thiadiazolines on mild steel in acidic medium. *E-Journal Chem.* **7**, 185–197 (2010).

42. Elayyachy, M., El Idrissi, A. & Hammouti, B. New thio-compounds as corrosion inhibitor for steel in 1M HCl. *Corros. Sci.* **48**, 2470–2479 (2006).

43. Loto, R. T., Loto, C. A. & Popoola, A. P. I. Corrosion inhibition of thiourea and thiadiazole derivatives: A review. *J. Mater. Environ. Sci.* **3**, 885–894 (2012).

44. Kooliyat, R., Kakkassery, J. T., Raphael, V. P., Cheruvathur, S. V. & Paulson, B. M. Synthesis, cyclic voltammetric, electrochemical, and gravimetric corrosion inhibition investigations of Schiff base derived from 5,5-Dimethyl-1,3-cyclohexanedione and 2-Aminophenol on mild steel in 1 M HCl and 0.5 M H_2SO_4. *Int. J. Electrochem.* **2019,** 1094148 (2019).

45. Cang, H., Fei, Z., Shao, J., Shi, W. & Xu, Q. Corrosion inhibition of mild steel by Aloes extract in HCl solution medium. *Int. J. Electrochem. Sci.* **8**, 720–734 (2013).

46. Ayawei, N., Ebelegi, A. N. & Wankasi, D. Modelling and interpretation of adsorption isotherms. *J. Chem.* **2017** 3039817 (2017).

47. Chen, Q., Tian, Y. & Li, P. Study on shale adsorption equation based on monolayer adsorption, multilayer adsorption and capillary condensation. *J. Chem.* **2017** 1496463 (2017).

48. Shainy, K., Anupama, K. & Joseph, A. Excellent anticorrosion behavior of *Ruta graveolens* extract (RGE) for mild steel in hydrochloric acid : electro analytical studies on the effect of time, temperature and inhibitor concentration. *J. Bio-Tribo-Corrosion* **2**, 1–10 (2016).

49. Bidi, M. A., Azadi, M. & Rassouli, M. A new green inhibitor for lowering the corrosion rate of carbon steel in 1 M HCl solution: Hyalomma tick extract. *Mater. Today Commun.* **24**, 100996 (2020).

50. Umoren, S. A., Solomon, M. M., Obot, I. B. & Suleiman, R. K. Comparative studies on the corrosion inhibition efficacy of ethanolic extracts of date palm leaves and seeds on carbon steel corrosion in 15% HCl solution. *J. Adhes. Sci. Technol.* **32**, 1934–1951 (2018).

51. Dehghani, A., Bahlakeh, G., Ramezanzadeh, B. & Ramezanzadeh, M. Experimental complemented with microscopic (electronic/atomic)-level modeling explorations of *Laurus nobilis* extract as green inhibitor for carbon steel in acidic solution. *J. Ind. Eng. Chem.* **84**, 52–71 (2020).

52. Leite, F. L., Bueno, C. C., Da Róz, A. L., Ziemath, E. C. & Oliveira, O. N. Theoretical models for surface forces and adhesion and their measurement using atomic force microscopy. *Int. J. Mol. Sci.* **13**, 12773–12856 (2012).

53. Asadi, N., Ramezanzadeh, M., Bahlakeh, G. & Ramezanzadeh, B. Utilizing Lemon Balm extract as an effective green corrosion inhibitor for mild steel in 1M HCl solution: A detailed experimental, molecular dynamics, Monte Carlo and quantum mechanics study. *J. Taiwan Inst. Chem. Eng.* **95**, 252–272 (2019).

54. Raphael, V. P., Kakkassery, J. T., Shanmughan, S. K. & Varghese, S. Interaction of two water soluble heterocyclic hydrazones on copper in nitric acid: electrochemical, surface morphological, and quantum chemical investigations. *Int. J. Met.* **2016**, 1–8 (2016).

55. Singh, A., Ansari, K. R., Chauhan, D. S., Quraishi, M. A., Lgaz, H. & Ill-Min, C. Comprehensive investigation of steel corrosion inhibition at macro/micro level by ecofriendly green corrosion inhibitor in 15% HCl medium. *J. Colloid Interface Sci.* **560**, 225–236 (2020).

56. Vidhya, T. K., Joby, T. K., Raphael, V. P., Ragi, K. & Reeja, J. *Ixora coccinea* extract as an efficient eco-friendly corrosion inhibitor in acidic media: Experimental and theoretical approach. *Curr. Chem. Lett.* **10**, 139–150 (2021).

57. Salmerón-Manzano, E., Garrido-Cardenas, J. A. & Manzano-Agugliaro, F. Worldwide research trends on medicinal plants. *Int. J. Environ. Res. Public Health* **17**, 3376 (2020).

58. Saxena, A., Prasad, D., Thakur, K. K. & Kaur, J. PDP, EIS, and surface studies of the low-carbon steel by the extract of *Tinospora cordifolia*: A green approach to the corrosion inhibition. *Arab. J. Sci. Eng.* **46**, 425–436 (2020) doi:10.1007/s13369-020-04894-9.

59. Saxena, A., Thakur, K. K., Saxena, K. K., Chambyal, S. & Sharma, A. Electrochemical studies and surface examination of low carbon steel by applying the extract of *Terminalia chebula*. *Mater. Today Proc.* **26**, 1360–1367 (2019).

60. Haldhar, R., Prasad, D., Saxena, A. & Kumar, R. Experimental and theoretical studies of *Ficus religiosa* as green corrosion inhibitor for mild steel in 0.5 M H_2SO_4 solution. *Sustain. Chem. Pharm.* **9**, 95–105 (2018).

61. Saxena, A., Prasad, D. & Haldhar, R. Investigation of corroscon inhibition effect and adsorption activities of *Achyranthes aspera* extract for mild steel in 0.5 M H_2SO_4. *J. Fail. Anal. Prev.* **18**, 957–968 (2018).

62. Ayoola, A., Ojo Sunday, I. F., Godwin, A., Ayeni, A. O., Oluranti, A., Oyinola, O., Olubunmi, A., Chiderah, C. Inhibitive corrosion performance of the eco-friendly Aloe vera in acidic media of mild and stainless steels. *J. Bio- Tribo-Corrosion* **6**, 1–13 (2020).

63. Anupama, K. K. & Joseph, A. Experimental and theortical studies on *Cinnamomum verum* leaf extract and one of its major components, eugenol as environmentally benign corrosion inhibitors for mild steel in acid media. *J. Bio-Tribo-Corrosion* **4**, 30 (2018).

64. Ji, G., Dwivedi, P., Sundaram, S. & Prakash, R. Inhibitive effect of *Chlorophytum borivilianum* root extract on mild steel corrosion in HCl and H_2SO_4 solutions. *Ind. Eng. Chem. Res.* **52**, 10673–10681 (2013).

65. Chidiebere, M. A., Ogukwe, C. E., Oguzie, K. L., Eneh, C. N. & Oguzie, E. E. Corrosion inhibition and adsorption behavior of *Punica granatum* extract on mild steel in acidic environments: experimental and theoretical studies. *Ind. Eng. Chem. Res.* **51**, 668–677 (2012).

66. Karthiga, N. K., Rajendran, S., Prabhakar, P., Al-Hashem, A. & Shanmugapriya, S. Corrosion inhibition of mild steel by an aqueous extract of *Allium sativum*. *Eur. J. Biomed. Pharm. Sci.* **5**, 838–843 (2018).

67. Faustin, M., Maciuk, A., Salvin, P., Roos, C. & Lebrini, M. Corrosion inhibition of C38 steel by alkaloids extract of *Geissospermum laeve* in 1M hydrochloric acid: electrochemical and phytochemical studies. *Corros. Sci.* **92**, 287–300 (2015).

68. Deyab, M. A., Osman, M. M., Elkholy, A. E. & El-Taib Heakal, F. Green approach towards corrosion inhibition of carbon steel in produced oilfield water using lemongrass extract. *RSC Adv.* **7**, 45241–45251 (2017).

69. Savita, Mourya, P., Namrata, C., Surendra, K., Singh, V. K. & Singh, M. M. *Strychnos nuxvomica*, *Piper longum* and *Mucuna pruriens* seed extracts as eco-friendly corrosion inhibitors for copper in nitric acid. *RSC Adv.* **6**, 95644–95655 (2016).

70. El-Etre, A. Y. Inhibition of acid corrosion of carbon steel using aqueous extract of olive leaves. *J. Colloid Interface Sci.* **314**, 578–583 (2007).

71. Mayakrishnan, P., Seung Hyun, K., Asokan, S., Hemapriya, V. & Chung, I. M. β-Sitosterol isolated from rice hulls as an efficient corrosion inhibitor for mild steel in acidic environments. *New J. Chem.* **41**, 3900–3907 (2017).

72. Saxena, A., Prasad, D., Haldhar, R., Singh, G. & Kumar, A. Use of *Saraca ashoka* extract as green corrosion inhibitor for mild steel in 0.5 M H_2SO_4. *J. Mol. Liq.* **258**, 89-97 (2018).

73. Ji, G., Anjum, S., Sundaram, S. & Prakash, R. *Musa paradisica* peel extract as green corrosion inhibitor for mild steel in HCl solution. *Corros. Sci.* **90**, 107-117

(2014).

74. Lahhit, N. N., Bouyanzer, A., Desjobert, J. M., Hammouti, B., Salghi, R., Costa, J., Jama, C., Bentiss, F. & Majidi, L. Fennel (*Foeniculum Vulgare*) essential oil as green corrosion inhibitor of carbon steel in hydrochloric acid solution. *Port. Electrochim. Acta* **29**, 127–138 (2011).

75. Dahmani, K., Galai, M., Cherkaoui, M., El hasnaoui, A. & El Hessni, A. Cinnamon essential oil as a novel eco-friendly corrosion inhibitor of copper in 0.5 M sulfuric acid medium. *J. Mater. Environ. Sci.* **8**, 1676–1689 (2017).

76. Fekry, A. M. & Ameer, M. A. Corrosion inhibition of mild steel in acidic media using newly synthesized heterocyclic organic molecules. *Int. J. Hydrogen Energy* **35**, 7641–7651 (2010).

77. Sutter, E. M. M., Ammeloot, F., Pouet, M. J., Fiaud, C. & Couffignal, R. Heterocyclic compounds used as corrosion inhibitors: correlation between ^{13}C and ^{1}H NMR spectroscopy and inhibition efficiency. *Corros. Sci.* **41**, 105–115 (1999).

78. Rohira, B. & Singh, G. Adsorption kinetics of dihydroxypyrimidine on mild steel in 1 N phosphoric acid. *Indian J. Chem. Technol.* **3**, 263–268 (1996).

79. Ezhilarasi, M. R., Prabha, B. & Santhi, T. Novel pyrazole based ionic liquid as a corrosion inhibitor for mild steel in acidic media. *Chem. Sci. Trans.* **4**, 758–767 (2015).

80. Mushtaq, J. & Meften, M. Synthesis, characterization and study of a new heterocyclic compound as corrosion inhibitor in 15% HCl solution. *Int. J. Innov. Res. Sci. Eng. Technol.* **5**, 13685-13696 (2007).

81. Fouda, A., El-Aziz, S., Abd el-Maksoud, S. A., El-Sayed, E. H., Elbaz, H. A. & Abousalem, A. S. Effectiveness of some novel heterocyclic compounds as corrosion inhibitors for carbon steel in 1 M HCl using practical and theoretical methods. *RSC Adv.* **11**, 19294–19309 (2021).

82. Aljourani, J., Golozar, M. A. & Raeissi, K. The inhibition of carbon steel corrosion in hydrochloric and sulfuric acid media using some benzimidazole derivatives. *Mater. Chem. Phys.* **121**, 320–325 (2010).

83. Shanmughan, S. K., Kakkassery, J. T., Raphael, V. P. & Paul, A. Electrochemical and surface morphological studies of carbon steel corrosion by a novel polynuclear Schiff base in HCl solution. *ISRN Electrochem.* **2013**, 820548 (2013).

84. Kuriakose, N., Kakkassery, J. T., Raphael, V. P. & Shanmughan, S. K. Electrochemical impedance spectroscopy and potentiodynamic polarization analysis on anticorrosive activity of Thiophene-2-Carbaldehyde derivative in acid medium. *Indian J. Mater. Sci.* **2014**, 124065 (2014).

85. 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. *Corros. Sci.* **92**, 104–117 (2015).

86. Paul, A., Thomas, K. J., Raphael, V. P. & Shaju, K. S. 3-Formylindole-4-aminobenzoic acid: A potential corrosion inhibitor for mild steel and copper in

hydrochloric acid media. *ISRN Corros.* **2012**, 1–9 (2012).

87. Meng, Y., Wenbo, N., Xu, B., Yang, W., Zhang, K., Chen, Y., Li, L., Liu, X., Zheng, J. & Zhang, Y. Inhibition of mild steel corrosion in hydrochloric acid using two novel pyridine Schiff base derivatives: A comparative study of experimental and theoretical results. *RSC Adv.* **7**, 43014–43029 (2017).

88. Dohare, P., Quraishi, M. A. & Obot, I. B. A combined electrochemical and theoretical study of pyridine-based Schiff bases as novel corrosion inhibitors for mild steel in hydrochloric acid medium. *J. Chem. Sci.* **130**, 1–19 (2018).

89. John, S., Jeevana, R., Aravindakshan, K. K. & Joseph, A. Corrosion inhibition of mild steel by N(4)-substituted thiosemicarbazone in hydrochloric acid media. *Egypt. J. Pet.* **26**, 405–412 (2017).

90. Yurt, A., Balaban, A., Kandemir, S. U., Bereket, G. & Erk, B. Investigation on some Schiff bases as HCl corrosion inhibitors for carbon steel. *Mater. Chem. Phys.* **85**, 420–426 (2004).

91. Hosseini, M. G., Ehteshamzadeh, M. & Shahrabi, T. Protection of mild steel corrosion with Schiff bases in 0.5 M H_2SO_4 solution. *Electrochim. Acta* **52**, 3680–3685 (2007).

92. Sini, V., Joby, T., Vinod, R. & Shaju, K. S. Corrosion inhibition capacity of two heterocyclic oximes on copper in nitric acid: electrochemical, quantum chemical and surface morphological investigations. *Curr. Chem. Lett.* **8**, 1–12 (2019).

93. Mansouri, H. & Alavi, S. A study of microbial influenced corrosion in oil and gas industry. *First International Conference of Oil, Gas, Petrochemical and Power Plant*, Tehran, Iran (2012). doi:10.13140/RG.2.1.3117.8089.

94. Costerton, J. W., Geesey, G. G. & Cheng, K.-J. How bacteria stick. Sci. Am. 238, 86–95, This week's Citation classic CC/Number 48 (1978).

95. Trevors, J., & Gurtler, V. *Microbiology of Atypical Environments*, First Edition, Academic Press, Vol. 45, 123–144 (2018).

96. Mara, D. & Horan, N. *Handbook of Water and Wastewater Microbiology*, First Edition, Academic Press (2003).

97. Huber, B., Herzog, B., Drewes, J. E., Koch, K. & Müller, E. Characterization of sulfur oxidizing bacteria related to biogenic sulfuric acid corrosion in sludge digesters. *BMC Microbiol.* **16**, 153 (2016).

98. Glasauer, S. M., Beveridge, T. J., Burford, E. P., Harper, F. A. & Gadd, G. M. Metals and metalloids, transformation by microorganisms. *Sci. Prog.* **86**, 179–202 (2013).

99. Gu, T. Theoretical modeling of the possibility of acid producing bacteria causing fast pitting biocorrosion. *J. Microb. Biochem. Technol.* **06**, 68-74 (2014).

100. Enning, D. & Garrelfs, J. Corrosion of iron by sulfate-reducing bacteria: new views of an old problem. *Appl. Environ. Microbiol.* **80**, 1226–1236 (2014).

101. Kielemoes, J., Bultinck, I., Storms, H., Boon, N. & Verstraete, W. Occurrence of manganese-oxidizing microorganisms and manganese deposition during biofilm formation on stainless steel in a brackish surface water. *FEMS Microbiol. Ecol.* **39**, 41–55 (2002).

102. Kermani, B. & Harrop, D. *Corrosion and Materials in Hydrocarbon Production: A Compendium of Operational and Engineering Aspects*, First Edition, Wiley-ASME Press Series (2019).

103. Javaherdashti, R. *Microbiologically Influenced Corrosion, An Engineering Insight*, First Edition, Springer-Verlag London (2008).

104. Skovhus T L, Enning D & Lee J S. *Microbiologically Influenced Corrosion in the Upstream Oil and Gas Industry*, CRC Press (2017).

105. STG 31- Oil and Gas Production. *Selection, application, and evaluation of biocides in the oil and gas industry*, NACE 31205-2006-SG (2006).

106. Javaherdashti, R., & Akvan, F. *Hydrostatic Testing, Corrosion, and Microbiologically Influenced Corrosion: A Field Manual for Control and Prevention*, First Edition, CRC Press (2017).

107. Flynn, D. J. & Nalco Company. *The Nalco water handbook*, Third Edition, McGraw-Hill (2009).

108. Heidersbach, R. *Metallurgy and Corrosion Control in Oil and Gas Production*, Second Edition, Wiley (2018).

109. Hsu, C. W., Chen, T. E., Lo, K. Y. & Lee, Y. L. Inhibitive properties of Benzyldimethyldodecylammonium chloride on microbial corrosion of 304 stainless steel in a Desulfovibrio desulfuricans-inoculated medium. *Materials.* **12**, 307 (2019).

110. Wang, J., Hou, B., Xiang, J., Chen, X., Gu, T. & Liu, H. The performance and mechanism of bifunctional biocide sodium pyrithione against sulfate reducing bacteria in X80 carbon steel corrosion. *Corros. Sci.* **150**, 296–308 (2019).

111. Shaban, S. M., Aiad, I., Moustafa, A. H. & Aljoboury, O. H. Some alginates polymeric cationic surfactants; surface study and their evaluation as biocide and corrosion inhibitors. *J. Mol. Liq.* **273**, 164–176 (2019).

112. Vaithiyanathan, S., Chandrasekaran, K. & Barik, R. C. Green biocide for mitigating sulfate-reducing bacteria influenced microbial corrosion. *3 Biotech* **8**, 495 (2018).

113. Rasool, K., Gheyath, K. N., Nadin, Y., Ravi, P. P., Abdul Rasheed, P. & Mahmoud, K. A. "Green" ZnO-interlinked chitosan nanoparticles for the efficient inhibition of sulfate-reducing bacteria in inject seawater. *ACS Sustain. Chem. Eng.* **6**, 3896–3906 (2018).

114. Carlson, H. K., Mullan, M. R., Mosqueda, L. A., Chen, S., Arkin, M. R. & John, D. C. High-throughput screening to identify potent and specific inhibitors of microbial sulfate reduction. *Environ. Sci. Technol.* **51**, 7278–7285 (2017).

115. Narenkumar, J., Parthipan, P., Usha Raja, N. A., Benelli, G., Murugan, K. & Rajasekar, A. Ginger extract as green biocide to control microbial corrosion of mild steel. *Biotech* **7**, 1–11 (2017).

116. Labena, A., Hegazy, M. A., Horn, H. & Müller, E. The biocidal effect of a novel synthesized gemini surfactant on environmental sulfidogenic bacteria: planktonic cells and biofilms. *Mater. Sci. Eng. C. Mater. Biol. Appl.* **47**, 367–375 (2015).

117. Labena, A., Hegazy, M. A., Horn, H. & Müller, E. Cationic gemini surfactant as a corrosion inhibitor and a biocide for high salinity Sulfidogenic bacteria originating from an oil-field water tank. *J. Surfactants Deterg.* **17**, 419–431 (2014).

118. Shaban, S., Aiad, I., Tawfik, S., Abd-Elaal, A. A. & El-Shafie, M. Enhancing of corrosion inhibition and the biocidal effect of phosphonium surfactant compounds for oil field equipment. *J. Surfactants Deterg.* **17**, 391–401 (2013).

119. Bhola, S. M., Faisa,l M. A., Bhola, R., Spear, J. R., Mishra, B., Olson, D. L. & Anthony, E. K. Neem extract as an inhibitor for biocorrosion influenced by sulfate reducing bacteria: A preliminary investigation. *Eng. Fail. Anal.* **36**, 92–103 (2014).

120. Parthipan, P., Elumalai, P., Narenkumar, J., Machuca, L. L., Murugan, K., Obuli, P. K. & Aruliah, R. *Allium sativum* (garlic extract) as a green corrosion inhibitor with biocidal properties for the control of MIC in carbon steel and stainless steel in oilfield environments. *Int. Biodeterior. Biodegrad.* **132**, 66–73 (2018).

121. Negm, N. A., El Farargy, A. F., Al Sabagh, A. M. & Abdelrahman, N. R. New Schiff base cationic surfactants: surface and thermodynamic properties and applicability in bacterial growth and metal corrosion prevention. *J. Surfactants Deterg.* **14**, 505–514 (2011).

122. Kobisy, A. S., Nassar, H. N., Tawfik, S. M., Elshatoury, E. H. & Aiad, I. Mitigation of eco-unfriendly and costly microbial induced corrosion using novel synthesized Schiff base cationic surfactants. *J. Chem. Technol. Biotechnol.* **96**, 941–952 (2021).

123. Shaban, S. M., Saied, A., Tawfik, S. M., Abd-Elaal, A. & Aiad, I. Corrosion inhibition and biocidal effect of some cationic surfactants based on Schiff base. *J. Ind. Eng. Chem.* **19**, 2004–2009 (2013).

124. Negm, N. A., Zaki, M. F. & Salem, M. A. I. Cationic Schiff base amphiphiles and their metal complexes: surface and biocidal activities against bacteria and fungi. *Colloids Surf. B.* **77**, 96–103 (2010).

125. Chhabra, S. C., Uiso, F. C. & Mshiu, E. N. Phytochemical screening of tazanian medical plants. *I. J. etnopharmacology* **11**, 157–179 (1984).

126. Roopashree, T. S., Dang, R., Rani, S. R. H. & Narendra, C. Antibacterial activity of antipsoriatic herbs: *Cassia tora*, *Momordica charantia* and *Calendula officinalis*. *Int. J. Appl. Res. Nat. Prod.* **1**, 20–28 (2008).

127. Sofowora, A. Recent trends in research into African medicinal plants. *J. Ethnopharmacol.* **38**, 197–208 (1993).

128. Rami, E., Sipai, S. & Patel, I. Studies on qualitative and quantitative phytochemical analysis of *Piper longum* linn. *Int. J. Pharma Bio Sci.* **4**, 11–17 (2013).

129. Binsi, M. P., Joby, T. K., Ragi, K., Sini, V. C. & Reeja, J. Interaction of two heterocyclic schiff bases derived from 2-acetyl pyridine on mild steel in hydrochloric acid: physicochemical and corrosion inhibition investigations. *Curr. Chem. Lett.* **9**, 19–30 (2020).

130. Sanni, O. & Popoola, A. P. I. Assessment of concentration, temperature and exposure time effect on waste product as a sustainable inhibitor for stainless steel corrosion: optimization using response surface method. *J. Bio- Tribo-Corrosion* **5**, 1–14 (2019).

131. Bhattacharya, S. *Central Composite Design for response surface methodology and its application in pharmacy in Response Surface Methodology in Engineering Science 1–19*, IntechOpen Book series (2021).

132. Prabhu, D., Prabhu, P. R. & Rao, P. Thermodynamics, adsorption, and response surface methodology investigation of the corrosion inhibition of aluminum by *Terminalia chebula* Ritz. extract in H_3PO_4. *Chem. Pap.* **75**, 653–667 (2020) doi:10.1007/s11696-020-01318-8.

133. El-Shamy, A. M., El-Hadek, M. A., Nassef, A. E. & El-Bindary, R. A. Optimization of the influencing variables on the corrosion property of steel alloy 4130 in 3.5 wt.% NaCl solution. *J. Chem.* **2020**, 9212491 (2020).

134. Ajeigbe, S. O., Basar, N., Hassan, M. A. & Aziz, M. Optimization of corrosion inhibition of essential oils of *Alpinia galanga* on mild steel using response surface methodology. *ARPN J. Eng. Appl. Sci.* **12**, 2763–2771 (2017).

135. Okewale, A. O. & Adebayo, T. Investigation of pumpkin pod extract as corrosion inhibitor for carbon steel in HCl solution. *Niger. J. Technol.* **39**, 173–181 (2020).

136. Ferreira, S. L. C., Bruns, R. E., Ferreira, H. S., Matos, G. D., David, J. M., Brandao, G. C., Da Silva, E. G. P., Portugal, L. A., Dos Reis, P. S., Souza, A. S. & Dos Santos, W. N. L. Box-Behnken design: An alternative for the optimization of analytical methods. *Anal. Chim. Acta* **597**, 179–186 (2007).

137. Krishna, J. G. *Pigment production by marine Serratia sp. BTW J8*. Ph. D Thesis, CUSAT, Cochin (2008).

138. Stolp, H., Starr, M. P., Truper, H. G., Balows, A. & Schlegel, H. G. *The Prokaryotes: A Handbook on Habitats, Isolation, and Identification of Bacteria*, Springer-Verlag Berlin Heidelberg (1981).

139. Norman, D. L. *Bergey's Manual of Determinative Bacteriology*, Eightth Edition, Williams & Wilkins Co., vol. 22 (1975).

140. Green, M. R. & Sambrook, J. Molecular Cloning: A Laboratory Manual, Fourth Edition, Cold Spring Harbor Laboratory Press Bookstore, vol. 1 (2014).

141. Reddy, G. S., Aggarwal, R. K., Matsumoto, G. I. & Shivaji, S. Arthrobacter flavus sp. nov., a psychrophilic bacterium isolated from a pond in McMurdo Dry Valley,

Antarctica. *Int. J. Syst. Evol. Microbiol.* **50**, 1553–1561 (2000).

142. Bauer, A. W., Kirby, W. M. M., Sherris, J. C. & Turck, M. Antibiotic susceptibility testing by a standardized single disk method. *Am. J. Clin. Pathol.* **45**, 493–496 (1966).

143. Mueller, J. H. & Hinton, J. A protein-free medium for primary isolation of the Gonococcus and Meningococcus. *Proc. Soc. Exp. Biol. Med.* **48**, 330–333 (1941).

144. Ikram, A., Muhammad Ali, V., Shumaila, S., Salman Khalid, A., Syed Tahir, A. & Shaheen, F. Ixorene, a new dammarane triterpene from the leaves of *Ixora coccinea* linn. *Rec. Nat. Prod.* **7**, 302–306 (2013).

145. Hamdy, A. & El-Gendy, N. S. Thermodynamic, adsorption and electrochemical studies for corrosion inhibition of carbon steel by henna extract in acid medium. *Egypt. J. Pet.* **22**, 17–25 (2013).

146. Saxena, A. & Kumar, J. Phytochemical screening, metal-binding studies and applications of floral extract of *Sonchus oleraceus* as a corrosion inhibitor. *J. Bio-Tribo-Corrosion* **6**, 1–10 (2020).

147. Zheng, X. Corrosion inhibition of mild steel in sulfuric acid solution by *Houttuynia cordata* extract. *Int. J. Electrochem. Sci.* **12**, 6232–6244 (2017).

148. Kurniawan, F. & Madurani, K. Electrochemical and optical microscopy study of red pepper seed oil corrosion inhibition by self-assembled monolayers (SAM) on 304 SS. *Prog. Org. Coatings* **88**, 256–262 (2015).

149. Idris, M. N., Daud, A. R. & Othman, N. K. Electrochemical impedance spectroscopy study on corrosion inhibition of benzyltriethylammonium chloride. *AIP Conf. Proc.* **1571**, 23–28 (2013).

150. El-Lateef, H. M. A., El-Sayed, A. R., Mohran, H. S. & Shilkamy, H. A. S. Corrosion inhibition and adsorption behavior of phytic acid on Pb and Pb–In alloy surfaces in acidic chloride solution. *Int. J. Ind. Chem.* **10**, 31–47 (2019).

151. Oonincx, P. J., Homborg, A. M., Van Westing, E. P. M., Tinga, T., Zhang, X., Ferrari, G. M., Dewit, J. H. W. & Mol, J. M. C. Novel time–frequency characterization of electrochemical noise data in corrosion studies using Hilbert spectra. *Corros. Sci.* **66**, 97–110 (2013).

152. Ragi, K., Kakkassery, J. T., Raphael, V. P., Paulson, B. M. & Johnson, R. Corrosion inhibition of mild steel by N, N'-(5,5- dimethylcyclohexane-1,3-diylidene) dianiline in acid media: gravimetric and electrochemical evaluations. *Curr. Chem. Lett.* **10**, 67–80 (2021).

153. Singh, A., Ansari, K. R., Chauhan, D. S., Quraishi, M. A., Lgaz, H. & Ill-Min, C. Comprehensive investigation of steel corrosion inhibition at macro/micro level by ecofriendly green corrosion inhibitor in 15% HCl medium. *J. Colloid Interface Sci.* **560**, 225–236 (2020).

154. Raphael, V. P., Shanmughan, S. K. & Kakkassery, J. T. Monitoring the interaction of two heterocyclic compounds on carbon steel by electrochemical polarization, noise, and quantum chemical studies. *Int. J. Corros.* **2016**, 4204532 (2016).

155. Abbas, D., Resan, K. & Takhakh, A. Optimization of Ni-Ti-Cu shape memory effect using minitab program. *Int. J. Energy Environ. Spec. Issue Appl. Mech. Res.* **7**, 263–268 (2016).

156. Manescu, R., Nedelcu, A. & Adela-Eliza, D. Improvement the quality of industrial products by applying the pareto chart. *Rev. Air Force Acad.* **13**, 169–172 (2015).

157. Mathew, A., Areekara, S. & Sabu, A. S. Sensitivity analysis on radiative heat transfer of hydromagnetic Carreau nanoliquid flow over an elongating cylinder using Bulirsch-Stoer algorithm. *Therm. Sci. Eng. Prog.* **25**, 101038 (2021).

158. Achayindee, S. Roengsumran, S. & Mahatumaratana, C. Chemical constituents of the leaf of *Croton oblongifolius* Roxb., Chulalongkorn University (1996) http://cuir.car.chula.ac.th/handle/123456789/42340.

159. Saxena, A., Kishor, K. & Bhardwaj, N. Electrochemical studies and surface examination of low carbon steel by applying the extract of *Musa acuminata*. *Surf. Interfaces.* **18,** 100436 (2020).

160. Farhadian, A., Rahimi, A., Nehzat, S., Shaabani, A., Majid, A. & Alavi, A. A theoretical and experimental study of castor oil-based inhibitor for corrosion inhibition of mild steel in acidic medium at elevated temperatures. *Corros. Sci.* **175**, 108871 (2020).

161. Mathew, A., Neethu, T. S. & Areekara, S. Three-dimensional hydromagnetic hybrid nanoliquid flow and heat transfer between two vertical porous plates moving in opposite directions: Sensitivity analysis. *Heat Transf.* **50**, 1–24 (2021) doi:10.1002/htj.22192.

162. Luo, X., Bai, R., Zhen, D., Yang, Z., Huang, D., Mao, H., Li, X., Zou, H., Xiang, Y., Liu, K., Wen, Z. & Fu, C. Response surface optimization of the enzyme-based ultrasound-assisted extraction of acorn tannins and their corrosion inhibition properties. *Ind. Crops Prod.* **129**, 405–413 (2019).

163. Reddi, K. K. & Tetali, S. D. Dry leaf extracts of *Tinospora cordifolia* (Willd.) Miers attenuate oxidative stress and inflammatory condition in human monocytic (THP-1) cells. *Phytomedicine* **61**, 152831 (2019).

164. Erna, M., Herdini, H. & Futra, D. Corrosion inhibition mechanism of mild steel by amylose-acetate/carboxymethyl chitosan composites in acidic media. *Int. J. Chem. Eng.* **2019**, 8514132 (2019).

165. Dagdag, O., Zaki, S., Erramli, H., Nuha, W., Lei, G., Verma, C., Ebenso, E. E., Kaya, S. & El Harfi, A. Epoxy prepolymer as a novel anti-corrosive material for carbon steel in acidic solution: electrochemical, surface and computational studies. *Mater. Today Commun.* **22**, 100800 (2020).

166. Muthamma, K., Kumari, P., Lavanya, M. & Rao, S. A. Corrosion inhibition of mild steel in acidic media by N-[(3,4-dimethoxyphenyl)methyleneamino]-4-hydroxy-benzamide. *J. Bio- Tribo-Corrosion* **7**, 1–19 (2021).

167. Anupama, K. K., Ramya, K. & Joseph, A. Electrochemical measurements and theoretical calculations on the inhibitive interaction of *Plectranthus amboinicus*

leaf extract with mild steel in hydrochloric acid. *Meas. J. Int. Meas. Confed.* **95**, 297–305 (2017).

168. Preethi Kumari, P., Shetty, P. & Rao, S. A. Electrochemical measurements for the corrosion inhibition of mild steel in 1 M hydrochloric acid by using an aromatic hydrazide derivative. *Arab. J. Chem.* **10**, 653–663 (2017).

169. Chira, A., Bucur, B. & Radu, G. L. Electrodeposited organic layers formed from aryl diazonium salts for inhibition of copper corrosion. *Materials.* **10**, 235 (2017).

170. Anadebe, V. C., Onukwuli, O. D., Omotioma, M. & Okafor, N. A. Optimization and electrochemical study on the control of mild steel corrosion in hydrochloric acid solution with bitter kola leaf extract as inhibitor. *South African J. Chem.* **71**, 51–61 (2018).

171. Prabhu, P. R., Prabhu, D. & Rao, P. Analysis of *Garcinia indica* Choisy extract as eco-friendly corrosion inhibitor for aluminum in phosphoric acid using the design of experiment. *J. Mater. Res. Technol.* **9**, 3622–3631 (2020).

172. Prabhu, P. R., Prabhu, D., Sharma, S. & Kulkarni, S. M. Surface properties and corrosion behavior of turn-assisted deep-cold-rolled AISI 4140 steel. *J. Mater. Eng. Perform.* **29**, 5871–5885 (2020).

173. Rameshkumar K B. Diversity of Garcinia species in the western ghats: phytochemical perspective. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram (2016).

174. Priya, S. V.Corrosion inhibition of mild steel in 1 M HCl and 0.5 M H_2SO_4 by natural product extract - A comparative analysis by electrochemical studies. *Int. J. Adv. Res. Chem. Chem. Eng.* **1**, 0–7 (2019).

175. Tsoeunyane, M. G., Makhatha, M. E. & Arotiba, O. A. Corrosion inhibition of mild steel by Poly(butylene succinate)-L-histidine extended with 1,6-diisocynatohexane polymer composite in 1 M HCl. *Int. J. Corros.* **2019**, 7406409 (2019).

176. Lima, K. C. D. S. De., Paiva, V. M., Perrone, D., Ripper, B., Grazieli, S., Maria, L. M. R., Amanda, G. da V. & Eliane, D. Glycine max meal extracts as corrosion inhibitor for mild steel in sulphuric acid solution. *J. Mater. Res. Technol.* **9**, 12756–12772 (2020).

177. Kumar, J., Kaur, A. & Narang, P. Phytochemical screening and metal binding studies on floral extract of *Solanum nigrum*. *Mater. Today Proc.* **26**, 3332–3336 (2019).

178. Mei, B.-A., Munteshari, O., Lau, J., Dunn, B. & Pilon, L. Physical interpretations of Nyquist plots for EDLC electrodes and devices. *J. Phys. Chem. C.* **122**, 194–206 (2017).

179. Loto, R. T., Loto, C. A. & Fedotova, T. Electrochemical studies of mild steel corrosion inhibition in sulfuric acid chloride by aniline. *Res. Chem. Intermed.* **40**, 1501–1516 (2014).

180. Ameer, M. & Fekry, A. Corrosion inhibition of mild steel by natural product

compound. *Prog. Org. Coatings* **71**, 343–349 (2011).

181. Mehdipour, M., Ramezanzadeh, B. & Arman, S. Y. Electrochemical noise investigation of Aloe plant extract as green inhibitor on the corrosion of stainless steel in 1M H_2SO_4. *J. Ind. Eng. Chem.* **21**, 318–327 (2015).

182. Makhlouf A S H & Aliofkhazraei M. Handbook of Materials Failure Analysis With Case Studies from the Aerospace and Automotive Industries, Butterworth Heinemann, Elsevier (2016).

183. Allal, H., Belhocine, Y. & Emna, Z. Computational study of some thiophene derivatives as aluminium corrosion inhibitors. *J. Mol. Liq.* **265**, 668-678 (2018).

184. Olawale, O., Bello, O. J., Ogunsemi, B. T., Uchella, U. C., Oluyori, A. P. & Oladejo, N. K. Optimization of chicken nail extracts as corrosion inhibitor on mild steel in 2M H_2SO_4. *Heliyon* **5**, e02821 (2019).

185. Haris, M., Mahmood, R., Rahman, H. & Rahman, N. *In vitro* cytotoxic activity of clerodendrum infortunatum L. against T47D, PC-3, A549 and HCT-116 human cancer cell lines and its phytochemical screening. *Int. J. Pharm. Pharm. Sci.* **8**, 439–444 (2016).

186. Subramanian, S., Nair, A. Scutellarin and hispidulin-7-0-glucuronide from the leaves of *Clerodendrum indicum* and *Clerodendrum infortunatum*. *Phytochemistry* **12**, 1195 (1973).

187. Das, B., Pal, D. & Haldar, A. A review on biological activities and medicinal properties of *Clerodendrum infortunatum* linn. *Int. J. Pharm. Pharm. Sci.* **6**, 41–43 (2014).

188. Akens, H. A., Nkem, B. I. Corrosion inhibition of API 5L X80 pipeline steel in acidic environment using aqueous extract of *Thevetia peruviana*. *Chem. Int.* **6**, 117–128 (2020).

189. Zhang, W., Hui-Jing, L., Meirong, W., Li-Juan, W., Ai-Han, Z. & Yan-Chao, W. Highly effective inhibition of mild steel corrosion in HCl solution by using pyrido[1,2-a]benzimidazoles. *New J. Chem.* **43**, 413–426 (2019).

190. Shivakumar, S. S. & Mohana, K. N. Corrosion behavior and adsorption thermodynamics of some Schiff bases on mild steel corrosion in industrial water medium. *Int. J. Corros.* **2013**, 543204 (2013).

191. Manimegalai, S. & Manjula, P. Thermodynamic and adsorption studies for corrosion inhibition of mild steel in aqueous media by *Sargasam swartzii* (Brown algae). *J. Mater. Environ. Sci.* **6**, 1629–1637 (2015).

192. Praveen, B. M., Alhadhrami, A., Prasanna, B. M., Hebbar, N. & Prabhu, R. Anti-corrosion behavior of olmesartan for soft-cast steel in 1 mol dm^{-3} HCl. *Coatings* **11**, 965 (2021).

193. Akinbulumo, O. A., Odejobi, O. J. & Odekanle, E. L. Thermodynamics and adsorption study of the corrosion inhibition of mild steel by *Euphorbia heterophylla* L. extract in 1.5 M HCl. *Results Mater.* **5**, 100074 (2020).

194. Tan, B., Bin, X., Shengtao, Z., Yujie, Q., Lihui, X., Shijin, C. & Jiahong, H. Papaya leaves extract as a novel eco-friendly corrosion inhibitor for Cu in H_2SO_4 medium. *J. Colloid Interface Sci.* **582**, 918–931 (2021).

195. Akinbulumo, O. A. & Odejobi, O. J. Modeling and optimization of the inhibition efficiency of *Euphorbia heterophylla* extracts based corrosion inhibitor of mild steel corrosion in HCl media using a response surface methodology. *J. Chem. Technol. Metall.* **54**, 217–232 (2018).

196. Kundu, B. B., Karan, V., Ayesha, F., Priyanka, J., Devendra, K. P. & Vijay, K. *Dioscorea bulbifera* L. (Dioscoreaceae): A review of its ethnobotany, pharmacology and conservation needs. *South African J. Bot.* **140**, 365-374 (2020) doi:10.1016/j.sajb.2020.07.028.

197. Chen, S., Zhu, B. & Liang, X. Corrosion inhibition performance of coconut leaf extract as a green corrosion inhibitor for X65 steel in hydrochloric acid solution. *Int. J. Electrochem. Sci.* **15**, 1–15 (2020).

198. Umoren, S. A., Eduok, U. M., Solomon, M. M. & Udoh, A. P. Corrosion inhibition by leaves and stem extracts of *Sida acuta* for mild steel in 1 M H_2SO_4 solutions investigated by chemical and spectroscopic techniques. *Arab. J. Chem.* **9**, S209–S224 (2016).

199. Oguzie, E. E. Kanayo, L. O., Chris, O. A., Irene, O. U., Jude, N. O. & Victor, O. N. Natural products for materials protection: corrosion and microbial growth inhibition using *Capsicum frutescens* biomass extracts. *ACS Sustain. Chem. Eng.* **1**, 214–225 (2013).

200. Ali, A., Falih, S., Yousif, N., Rezgar, R. & Kamal, I. Modeling and optimization of structural steel corrosion inhibition using barely grass extract as green inhibitor. *Am. J. Environ. Eng.* **7**, 73–81 (2017).

201. Schuurman, T., De Boer, R. F., Kooistra-Smid, A. M. D. & Van Zwet, A. A. Prospective study of use of PCR amplification and sequencing of 16S ribosomal DNA from cerebrospinal fluid for diagnosis of bacterial meningitis in a clinical setting. *J. Clin. Microbiol.* **42**, 734–740 (2004).

202. Chaijarasphong, T., Thammachai, T., Itsathitphaisarn, O., Sritunyalucksana, K. & Suebsing, R. Potential application of CRISPR-Cas12a fluorescence assay coupled with rapid nucleic acid amplification for detection of white spot syndrome virus in shrimp. *Aquaculture* **512**, 734340 (2019).

203. AlAbbas, F. M., Charles, W., Shaily, M. B., John, R. S., David, L. O., Brajendra, M. & Anthony E. K. Influence of sulfate reducing bacterial biofilm on corrosion behavior of low-alloy, high-strength steel (API-5L X80). *Int. Biodeterior. Biodegradation* **78**, 34–42 (2013).

204. Behpour, M., Ghoreishi, S. M., Soltani, N. & Salavati-Niasari, M. The inhibitive effect of some bis-N,S-bidentate Schiff bases on corrosion behaviour of 304 stainless steel in hydrochloric acid solution. *Corros. Sci.* **51**, 1073–1082 (2009).

205. Delaunois, F., Tosar, F. & Vitry, V. Corrosion behaviour and biocorrosion of galvanized steel water distribution systems. *Bioelectrochemistry* **97**, 110–119

(2014).

206. Al Abbas, F. M., Bhola, R., Spear, J. R., Olson, D. L. & Mishra, B. Electrochemical characterization of microbiologically influenced corrosion on linepipe steel exposed to facultative anaerobic Desulfovibrio sp. *Int. J. Electrochem. Sci.* **8**, 859–871 (2013).

207. Li, X., Chen, H., Chen, P., Qing, C. & Li, H. Microbial activities' influence on three kinds of metal material corrosion behaviors. *J. Mater. Eng. Perform.* **26**, 2102–2109 (2017).

208. Chandrasatheesh, C. & Jayapriya, J. *Bioelectrochemical Interface Engineering*, John Wiley & Sons, Inc., First Edition, 77–90 (2019) doi:https://doi.org/10.1002/9781119611103.ch5.

209. Xi, Y., Mallavarapu, M. & Naidu, R. Reduction and adsorption of Pb^{2+} in aqueous solution by nano-zero-valent iron — A SEM , TEM and XPS study. *Mater. Res. Bull.* **45**, 1361–1367 (2010).

210. Jorgensen, J.-E., Mosegaard, L., Thomsen, L. E., Jensen, T. R. & Hanson, J. C. Formation of γ-Fe_2O_3 nanoparticles and vacancy ordering: An in situ X-ray powder diffraction study. *J. Solid State Chem.* **180**, 180–185 (2007).

211. Paulson, B., Kakkassery, J., Raphael, V. & Shanmughan, S. Prevention of reinforcement corrosion in concrete by sodium lauryl sulphate: electrochemical and gravimetric investigations. *Int. J. Corros.* **2018**, 1–10 (2018).