

Dr Pragneshkumar Niranjanbhai Dave

Designation : Professor

Specialization : Physical Chemistry

Address:

Office : Department of Chemistry,
Sardar Patel University,
Vallabh vidyanagar-388 120 (Gujarat)

Telephone : **9898262491**

Date of Birth : 09/06/1972

E-mail : **pragneshdave@rediffmail.com**

ORCID ID :

Residence : 202-Vraj Enclave,
Near Gajraj Bungalows,
In lane of H D F C Bank Ltd,
Prahaldnagar, Ahmedabad-380 015

Educational Qualifications: M Sc, Ph D, LL B, M B A

Academic Experience : 23 years

Research Area

- Catalysis
- Synthesis, characterization and applications of nanomaterials including hydrogels
- Synthesis of Propellants and explosives and their burning rate studies
- Heavy metals removal from wastewater and remediation
- The validation of analytical methods

Expertise

Physical Chemistry, Engineering Chemistry, Polymer Sciences

No. of Publication : 112

List of Publications (Appendix)

Research Papers Published:

1. Synthesis of 5-Nitro-1,2,4-Triazol-3-One Via: Conventional Heating, Microwave and Ultrasonication, *Journal of Chemistry: Education Research and Practice* Volume 5,42-46 (2021).
2. Emissions of non-methane volatile organic compounds from a landfill site in major city of India: impact on local air quality, *Heliyon* 6 (2020) e04537 (2020), DOI: <https://doi.org/10.1016/j.heliyon.2020.e04537>
3. *Recent Advances in Homogeneous and Heterogeneous Catalyst in Biginelli Reaction from 2015-19: A Concise Review*, *Chemistry Select* (2020),5,5552-5572 DOI: <https://doi.org/10.1002/slct202000742>
4. Heteropoly-12-tungstophosphoric acid H₃[PW₁₂O₄₀] over natural bentonite as a heterogeneous catalyst for the synthesis of 3,4-dihydropyrimidin-2-(1H)-ones, *Arabian Journal of Chemistry* (2020), DOI: <https://doi.org/10.1016/j.arabjc.2020.04.034>
5. 12-Tungstosilicic Acid H₄[W₁₂SiO₄₀] Over Natural Bentonite as a Heterogeneous Catalyst for the Synthesis of 3,4-dihydropyrimidin-2(1H)-ones, *Chemistry Select*, 2020, 5, 2395 – 2400, DOI: 10.1002/slct.201904962
6. Investigating catalytic properties of nanoferrites for both AP and nano-AP based composite solid propellant, *Combustion Science and Technology* DOI: <https://doi.org/10.1080/00102202.2020.1734582>
7. Performance of low pressure nanofiltration membrane in forward osmosis using magnesium chloride as draw solute, *Journal of Water Process Engineering*, 33, 101092, (2020). Doi: doi.org/10.1016/j.jwpe.2019.101092
8. Adsorptive abatement of ciprofloxacin using NiFe₂O₄ nanoparticles incorporated into G. ghatti-cl-P(AAm) nanocomposites hydrogel: isotherm, kinetic, and thermodynamic studies, *Polymer Bulletin*, (), 1-25, (2019). Doi: 0.1007/s00289-019-03032-2
9. Sex Determination in Papaya: A mini review, *Progress in Chemical and Biochemical Research*,2(4),228-234(2019).

10. Plant mediated synthesis of Iron nanoparticles and their Applications: A Review, *Progress in Chemical and Biochemical Research*,2(3),84-91(2019).
11. Nanomaterials as modifier for composite solid propellants, *Nano-Structures & Nano-Objects*,20, (2019). <https://doi.org/10.1016/j.nanoso.2019.100372>
12. The catalytic investigation of nanoferrites on the thermal decomposition behavior of AN based composite solid propellant, *Particulate Science and Technology*, DOI: 10.1080/02726351.2019.1639866.
13. Metal oxide nanoparticles as catalyst for Thermal behavior of AN based composite solid propellant, *Chemical Physics Letters*, 730,600–607(2019).
14. Investigation the catalytic profile of Eu and Pr doped CeO₂ nanoparticles for the thermal behavior of AP, *SN Applied Sciences*,(2019).
15. The catalytic activity of transition metal oxide nanoparticles on thermal decomposition of ammonium perchlorate, *Defence Technology*,15,629-635(2019).
16. Investigation of phytochemicals in methanolic leaves extracts of *Abutilon pannosum* and *Grewia tenax* by Q-TOF LC/MS,*Progress in Chemical and Biochemical Research*,2,13-19 (2019).
17. Development and Validation of a Stability Indicating HPLC Assay Method for Determination of Warfarin Sodium in Tablet Formulation, *Chemical Methodologies*, 3(3),322-339 (2019).
18. Water Purification Using Nanotechnology an Emerging Opportunities, *Chemical Methodologies*, 3,115-144(2018).
19. Phytochemical Analysis of leaves Extract of *Abutilon pannosum*inn-Butanolfor its Bioactive Components through Gas Chromatography-Mass Spectrometry (GC-MS), *IOSR Journal of Engineering (IOSRJEN)* ; 8(9),11-12 (2018) (ISSN (e): 2250-3021, ISSN (p): 2278-8719).
20. Ferrite: Potential nano-modifier for rocket propellants, *International Journal of EnergeticMaterials and Chemical Propulsion*, 16(4):381–390 (2017)
21. Batch Experiment of Removal Of Heavy Metal (Pb) (II) By Use Of Inexpensive Bio

22. Absorbent Leaf Of *Abutilon Pannosum* (APL), *Journal of Surface Science & Technology*; 34(1-2):37-49 (2018) (DOI: 10.18311/jsst/.2018/16325).
23. Schiff based corrosion inhibitors for metals in acidic environment: A review, *MOJ Mining and Metallurgy*;1(2):43–52 (2018) (DOI: 10.15406/mojmm.2018.01.00006).
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25. Stability Indicating Simultaneous Validation of Telmisartan and Cilnidipine with Forced Degradation Behavior Study by RP-UPLC in Tablet Dosage Form, *International Journal of Pharmaceutical Quality Assurance*, 7(3); 39-45(2016) (ISSN 0975 9506).
26. Development and validation of HPTLC method for quantitative determination of Azilsartanmedoxomil potassium in human plasma, *Asian Journal of Biochemical and Pharmaceutical Research*, 2(6),52-62 (2016) ISSN: 2231-2560.
27. Development and validation of UPLC method for quantitative determination of Azilsartanmedoxomil potassium in human plasma, technology transfer from HPLC and advantages over HPLC, *Asian Journal of Biochemical and Pharmaceutical Research*,2(6),42-51 (2016) ISSN:2231-2560.
28. Extraction, Isolation and Identification Very Important Fluorescence Compound from *Pongamia Pinnata* Leaves, *Journal of Environmental Science, Computer Science and Engineering & Technology*, 5(2), 217-222 (2016).
29. Phytochemical Screening and green Synthesis of Biogenic Silver Nanoparticle from Leaf Extract of *Pongamia Pinnata* (L) Pierre of Semi-Arid Region of Kachchh, *International Journal of Green and Herbal Chemistry*,5(2), 172-181(2016).
30. Comparison of Throat Sprays Containing Chlorhexidine Gluconate and Lidocaine Hydrochloride, *International Journal of Current Pharmaceutical Review and Research*, 7(3), 141-150(2016).
31. XRF analysis of *Pongamia Pinnata* Stem of SemiArid Region of Kachchh, *International Letters of Natural Sciences*, Vol. 40,55-61(2015)

32. XRF analysis of *Aegle marmelos* leaves of semi arid region of Kachchh, *International Letters of Chemistry, Physics and Astronomy* , Vol. 45, 73-78(2015)
33. Study of Anticoagulant Dabigatran by Analytical Instrumentation, *International Letters of Chemistry, Physics and Astronomy* Vol. 30 ,233-242,(2014)
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35. Study of Anticonvulsant Clobazam Drug by Sophisticated Instrumentation, *International Letters of Chemistry, Physics and Astronomy* Vol. 29 ,1-13,(2014)
36. Screening of Schiff Base Benzylamine-N-(P-MethoxyBenzylidene) As Corrosion Inhibitor for Zinc in Hydrochloric Acid, *J. Chem Bio Phy Sci Se. A*; Vol. 6(2),567-578,2016.
37. Bagasse fly ash as novel adsorbent for ionic dyes, *Der Chemica Sinica*, 2015, 6(12):59-69 (ISSN: 0976-8505).
38. Kinetic and thermodynamic study of dye removal by carbonized eucalyptus bark and its surface derivatives, *Der Chemica Sinica*, 2015, 6(12):41-54 (ISSN: 0976-8505).
39. Ti-alloys: Potential nano-modifier for Rocket Propellants, *International Journal of Nano Dimension*, 2016
40. Transition metal oxides nanoparticles: Potential nano-modifier for Rocket Propellants, *Journal of Particulate Science and Technology*, (Accepted), 2015
41. Nano Ferrites: Catalyst for thermal decomposition of ammonium per chlorate, *Journal of Particulate Science and Technology*, 33(06), 677-681, 2015 (DOI:10.1080/02726351.2015.1023479).
42. Ti-alloys Nano-catalyst for Ammonium Perchlorate thermal decomposition, *Arab Journal of Physical Chemistry*, 2 (1),25-32 (2015) (ISSN: 1658-6883).
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44. Thermal decomposition of AP/HTPB propellants in presence of Zn nanoalloys, *Appl Nanosci*, 5,93–98(2015)(DOI 10.1007/s13204-014-0296-3).

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53. Gas Chromatographic Method Development and Validation of Assay Method for the Determination of Ticlopidine Hydrochloride in Tablets Formulation, *International Journal of Chemical Studies*, Vol. 1 No. 3 101-106, 2013 (ISSN: 2321-4902).
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61. Synthesis, Properties and applications of interacting Blends of AcrylatedNovalac epoxy resin based Poly(Ester-Amide)s and Vinyl Ester, *Journal of Saudi Chemical Society*,20,S231–S235,2016.
62. Plasma Pyrolysis/Gasification of Cotton Waste and Energy Recovery Possibilities, *AsianJournal of Water, Environment and Pollution*, Vol 9 No 3,59-66,2012 (ISSN: 0972-9860)
63. Removal of iron for Safe Drinking Water, *Desalination*,,2012 .
64. Studies on Novel Interpenetrating networks of Urethane modified poly(ester-amide) and vinyl ester of Bisphenol-C, *Journal of Saudi Chemical Society*,,2012.
65. Adsorption Mechanism of Basic Red-12 over Eucalyptus Bark and Its Surface Derivatives, *Journal of Chemical & Engineering Data*, Volume, ,2012.(dx.doi.org/10.1021/je300296k)

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90. Glass Fiber Reinforced Composites of Phenolic – Urea - Epoxy resin blends –accepted in *Journal of Saudia Chemical Society*
91. Interacting Blends of Acrylated Poly(Ester-Amide)s Containing Epoxy Residues with Vinyl Ester Resin, *Journal of The Indian Chemical Society*,88,1-6 (2011)
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99. Kinetics and thermodynamics of copper ions removal from aqueous solution by use of activated charcoal *Indian Journal of Chemical Technology*, **Vol. 16**,234-239, 2009
100. Adsorption of lead from aqueous solutions using Kaolinite,in the National Conference Proceedings on “Current Trends in Technology”, NUCONE-2008, 178-182, 2008.
101. Plasma Pyrolysis of Plastic Waste,in the National Conference Proceedings on “Current Trends in Technology”, NUCONE-2008, 183-187, 2008.

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List of Minor/ Major projects carried out : 04

Project Title	Start Date	Completion Date	Project Cost	Sponsoring Agency
“Nano materials: As catalyst for thermal decomposition of HMX, NTO,AP ,AN and Propellants”	4 th Sept. 2019	3 rd Sept. 2022	Rs. 46,89,280/-	DST, New Delhi

Others

Honors

- Established “Center of Excellence in Chemical Science &Technology” at Krantiguru shyamji Krishna Verma Kachchh University,Bhuj.
- Established Center for “Soil Testing Laboratory” at Krishna Verma Kachchh University,Bhuj.
- Served as an acting Vice chancellor, acting Registrar; held positions of Dean, Faculty of Science; Member, Executive Council; Member, Senate; Member, Purchase Committee; Member, Building Committee etc.at Krishna Verma Kachchh University,Bhuj.
- Summer research fellowships for Teachers by IAS, INSA & NASI
- PRL Summer Internship

Highlights of achievements

- Development of Engineering Chemistry curricula and Labortarotires etc.at Nirma University,Ahmedabad.
- Development of Nanotechnology course at Chemical Engineering Department,Institute of Technology,Nirma University and created awarness to the Engineering students and facultites by arranging regular invited lectures;seminar;project related activities etc.
- organized several National Level Seminars,Conferences and Public lecture on Nanotechnology,Wastewater engienering and Green Chemistry theme and Short Term Training Programme etc.
- Has deliverd various lectures in the delivered more than 70 Invited Lecures;Lectures in Refresher Programme;AICTE Sponsored Short Term Training Programmes,students of the various Universites.