Curriculum Vitae

Dr. Rupesh Kumar
Assistant Professor
Department of Chemical Sciences
I.K Gujral Punjab Technical University
Kapurthala-144603

Email: rupesh.manak@gmail.com
dr.rupesh@ptu.ac.in
Mobile: 9465884829

ਡਾ. ਰੂਪੇਸ਼ ਕੁਮਾਰ
ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ
ਰਸਾਇਣ ਵਿਗਿਆਨ ਵਿਭਾਗ
ਆਈ.ਕੇ. ਗੁਜਰਾਲ ਪੰਜਾਬ ਟੈਕਨੀਕਲ ਯੂਨੀਵਰਸਿਟੀ
ਕਪੂਰਥਲਾ-144603

Office:
003B, Ground Floor,
Academic Building-III

Education:

Degree	University	Year	Division / %age
10th	Board of Secondary Education, Rajasthan	1996	1st / 80.18
12th	Board of Secondary Education, Rajasthan	1998	1st / 72.46
B.Sc.	Panjab University,Chandigarh	2002	1st / 74.15
M.Sc. Chemistry	Punjabi University, Patiala	2004	1st / 70.87
NET	UGC-CSIR	2006	
PhD	Punjabi University, Patiala	2010	
10th Punjabi (Additional Subject)	Punjab School Education Board, Mohali	2003	Pass

Experience:

18.09.2010-20.08.2016: Assistant Professor, DAV Institute of Engineering and Technology, Jalandhar.

22.08.2016-Onwards: Assistant Professor, I.K. Gujral Punjab Technical University, Kapurthala.

Publications:

S.No.	Authors	Title	Name of the journal
26	Monika Thakur, Harminder Singh, Jaspreet Kaur Rajput, **Rupesh Kumar**	Morphological and structural analysis of Fe/Sn bimetal system and graphene oxide~chitosan modified Fe/Sn composite - A comparative study and their mechanistic role in degradative fixation of chlorazol black and reactive blue 4 from water	Reaction Kinetics, Mechanisms & Catalysis, **Accepted, 2023. (Springer, IF 1.84)** https://doi.org/10.1007/s11144-023-02366-3 e-ISSN: 1878-5204
25	Rayees Ahmad Naikoo, Rashmi	A new entrant in ketene family: Generation of 2-(3-Oxo-allyl)-isoindole-1,3-dione and their [4+2] cycloadditions	Asian Journal of Organic Chemistry, In Press, **2023**.

	Sharma, **Rupesh Kumar**, Gaurav Bhargava	with 1,3-diazabuta-1,3-dienes	**(Wiley, IF: 3.116)** https://doi.org/10.1002/ajoc.202200652 eISSN: 2193-5815
24	Monika Thakur and **Rupesh Kumar**	Synthesis and Characterization of Graphene Oxide and Chitosan Decorated Nano Zerovalent Iron for Efficient Adsorptive Removal of Hazardous Azo Dye from Aqueous Medium	Asian Journal of Chemistry 35(1), 173-178, **2023**. ISSN: 0975-427X
23	Gobind Kumar, Gaurav Bhargava, **Rupesh Kumar**	Trio role of deep eutectic solvents in the green synthesis of 1,4-dihydropyridine synthesis via Hantzsch reaction	Polycyclic Aromatic Compounds, **2022**, 1-14. **(Taylor & Francis, IF: 2.19)** https://doi.org/10.1080/10406638.2022.2133905 ISSN: 1040-6638
22	Gobind Kumar, Yogesh Kumar, Gaurav Bhargava, **Rupesh Kumar**	Eosin Y Photocatalyzed Access to Biginelli Reaction Using Primary Alcohols via Domino Multicomponent Cascade: An Approach Towards Sustainable Synthesis of 3,4-dihydropyrimidin-2(1H)-ones	Journal of Chemical Sciences, 134:44, **2022**. **(Springer, IF: 2.15)** https://doi.org/10.1007/s12039-022-02039-z ISSN: 0973-7103
21	Maninderjeet K. Mann, Rupesh Kumar, Gaurav Bhargava	Facially Selective Oxo-Diels-Alder Cycloadditions of α-dienyl-β-lactam: An entry to pyrano-tethered β-lactams bifunctional hybrids	Orient. J. Chem., 38(3), **2022**, 790-795. ISSN: 0970 - 020X
20	Rayees Naikoo, **Rupesh Kumar**, Vipan Kumar, Gaurav Bhargava	Recent Developments in the Synthesis of Bicyclic Condensed Pyrimidinones	Current Organic Chemistry, 26(2), **2022**, 122-161. **(Bentham Science, IF: 2.22)** https://doi.org/10.2174/1385272826666220112152330 ISSN: 1875-5348
19	Rayees Ahmad Naikoo, Parvesh Singh, **Rupesh Kumar**, Gaurav Bhargava	Solvent free Mechanochemical synthesis of bisthioglycolic acid derivatives: An efficient and versatile strategy for carbon-sulphur bond formation An eco-friendly, easily achievable, and efficient strategy has been explored to synthesize functionalized bisthioglycolic acids using a variety of aldehydes and thioglycolic acid. The employed protocol is solvent-free and provides the desirable products in excellent yields (90-99%) with atom economy. Besides, cost effectiveness, short reaction times and milder reaction conditions are among other captivating benefits of the reported methodology.	Journal of Sulfur Chemistry **2021**, Accepted (https://doi.org/10.1080/17415993.2021.1983574). **(Taylor & Francis, IF 2.68)** ISSN: 1741-5993 (Print); 1741-6000 (Online)
18	Rayees Ahmad Naikoo, **Rupesh Kumar**, Parvesh Singh & Gaurav Bhargava	7-Endo-trig Pictet–Spengler type cyclization of 5-alkylidene/arylidene-amino-3H-pyrimidin-4-ones: An efficient and diastereoselective synthesis of pyrimido[4,5-b] [1,4]benzodiazepines The synthetic methdodlogy involves the synthesis of different variants of 5-arylidene-amino-3H-pyrimidines and their p-toluene sulfonic acid mediated relatively unexplored 7-endo-trig Pictet–Spengler type cyclisations to afford biologically relavent functionalized benzodiazepine condensed pyrimidinones such as pyrimido[4,5-b][1,4]benzodiazepines in good to excellent yields (82–94%).	Synthetic Communications, **2021**, 51(8), 1232-1241. **(Taylor & Francis, IF 2.007)** https://doi.org/10.1080/00397911.2021.1878224 ISSN: 0039-7911 (print); 1532-2432 (web)
17	Rayees Ahmad Naikoo, **Rupesh Kumar**, Vipan	Recent developments in the synthesis of tricyclic condensed pyrimidinones The present review article recapitulates various reports	Synthetic Communications, **2021**. **(Taylor & Francis, IF 2.007)**

	Kumar & Gaurav Bhargava	pertaining to substituted and functionalized tricyclic pyrimidinones reported since 2000.	https://doi.org/10.1080/00397911.2021.1885718 ISSN: 0039-7911 (print); 1532-2432 (web)
16	Monika Thakur, Harminder Singh, Jaspreet Kaur Rajput & **Rupesh Kumar**	Development of a sustainable ternary magnetic nanocomposite GCNI for efficient and synergistic photodegradation of Rhodamine B under solar irradiation: kinetic and mechanistic studies A novel sunlight-active ternary magnetic nano-photocatalyst GCNI (Nanozero valent Iron @ Graphene oxide and Chitosan support) was fabricated. This easily retrievable magnetic nanocomposite was found best for the solar-light-promoted degradation of RhB. The outcomes exhibited the highly efficient; up to 99.4% of dye removal, easy magnetic separation of photocatalyst, excellent reusability up-to 87.5% till six consecutive cycles, synergistic effect in adsorption and photo-degradation of dye.	International Journal of Environmental Analytical Chemistry, **2021**. **(Taylor & Francis, IF 2.826)** https://doi.org/10.1080/03067319.2021.1873974 ISSN: 0306-7319 (print) 1029-0397 (Online)
15	Priyanka Sharma, **Rupesh Kumar,** Gaurav Bhargava	Recent development in the synthesis of pyrrolin-4-ones/pyrrolin-3-ones This critical review article evaluates various reports on the synthesis of various simple and functionalized pyrrolin-4-ones/pyrrolin-3-ones from 2000 onwards.	Journal of Heterocyclic Chemistry, **2020**, 57(12), 4115-4135. **(Wiley, IF 2.193)** https://doi.org/10.1002/jhet.4143 ISSN: 1943-5193
14	Simran Harsh, Sanjay Kumar, Rohit Sharma, Yogesh Kumar and **Rupesh Kumar**	Chlorophyll triggered one-pot synthesis of 3,4-dihydropyrimidin-2(1H)-ones via photo induced electron transfer reaction The photocatalytic potential of chlorophyll has been investigated for the facile synthesis of dihydropyrimidinones utilizing concentrated solar irradiation towards sustainable energy solutions. This, one-pot, multicomponent Biginelli reaction, which involves a photoinduced electron transfer (PET) mechanism, affords a green and efficient approach for the transformation of the commercial aldehydes, β-keto ester and urea into valuable 3,4-dihydropyrimidin-2(1H)-ones.	Arabian Journal of Chemistry, **2020**, 13(3), 4720-4730. **(Elsevier, IF 5.165)** https://doi.org/10.1016/j.arabjc.2019.11.002 ISSN: 1878-5352
13	Mohamad Yusuf, Indu Solanki, Payal Jain and **Rupesh Kumar**	Photochemical studies: Chromones, bischromones and anthraquinone derivatives This review article describes the photochemical transformations of chromones, bischromones and anthraquinone derivatives and here main emphasis has been laid upon the intramolecular photochemical H-abstraction reactions that provide many exotic heterocyclics as the final photoproducts.	Arabian Journal of Chemistry, **2019**, 12(7), 1197-1211. **(Elsevier, IF 5.165)** https://doi.org/10.1016/j.arabjc.2014.11.031 ISSN: 1878-5352
12	Nisha, Chetan Sharma, **Rupesh Kumar** and Yogesh Kumar	Regioselective Copper(I)-Catalyzed Ullmann Amination of Halopyridyl Carboxylates using Sodium Azide: A Route for Aminopyridyl Carboxylates and their Transformation to Pyrido[2, 3-d]pyrimidin-4(1H)-ones This ligand free one-pot domino methodology proceeds through Ullmann-type coupling of halopyridyl carboxylates with sodium azide followed by reduction with ethanol. These functionalized aminopyridyl carboxylates provides an easy access to biologically potent pyrido[2, 3-d]pyrimidin-4(1H)-one hybrids. The C(sp2)-N bond formation utilize a readily available Cu-catalyst, NaN_3 as the amino source in ethanol.	ChemistrySelect, **2018**, 3(17), 4822-4826. **(Wiley, IF 2.109)** https://doi.org/10.1002/slct.201800907 ISSN: 2365-6549
11	Simran Harsh, Mohamad Yusuf,	Concentrated solar radiation promoted unconventional greener approach: solvent-free benign synthesis of	ARKIVOC, **2018**, VII, 119-130. **(ARKAT, USA IF 1.14)**

	Rohit Sharma, Yogesh Kumar and **Rupesh Kumar**	functionalized benzimidazoles Developed protocol utilizes the renewable concentrated solar-radiation (CSR) which offers a promising en route for the development of practical, highly efficient, scalable, catalyst free and solvent-free clean process leading to the synthesis of functionalized benzimidazoles. **This paper got highlighted in Synfacts as "An Illuminating Synthesis of Benzimidazoles."**	https://doi.org/10.24820/ark.5550190.p010.687 ISSN: 1551-7012 Synfacts, **2019**, 15(11), 1243. DOI: 10.1055/s-0039-1690306
10	Jasmeen Saini, **Rupesh Kumar**, Jaspreet Kaur Rajput, Arvind Kumar	Study of ZrxZn0.5−xNi0.5Fe2O4 0≤x≤0.25: Synthesis, structural, magnetic and electrical properties Zirconium substituted zinc–nickel ferrite nanoparticles with chemical composition of ZrxZn0.5−xNi0.5Fe2O4 (0≤x≤0.25) have been synthesized successfully by solution combustion method using high purity nitrates and fueling agent urea. Effect of change of doping concentration of Zirconium is observed using FTIR. The saturation magnetization gradually decreases with the increase in Zr substitution and reaches minimum when x=0.25 whereas the coercivity value reaches minimum when x=0.15. DC electrical resistivity has been found to vary with increasing Zr content. The good electrical resistivity (>107 Ωcm) qualify the ceramic for high frequency transformer applications.	Journal of Magnetism and Magnetic Materials, **2016**, 401, 770-774. **(Elsevier, IF 2.993)** https://doi.org/10.1016/j.jmmm.2015.10.135 ISSN: 0304-8853
9	**Rupesh Kumar** and Mohamad Yusuf	Synthesis and photochemical H-abstractions of some 2-thienyl/furyl-3-allyloxybischromones The photoirradiation of bischromones with *trans*-2-butenyl and 2-butynyl, has produced tetracyclic compounds and isomerized ethers as photoproducts. The formation of these photoproducts has been rationalized through γ *H*-abstraction by C=O group of the pyrone moiety. The chemical efficiency of the bischromone phototransformations is dictated by the nature of the intermediate spacer unit.	Indian Journal of Chemistry B, **2010**, 49B(2), 216-223. **(CSIR IF 0.592)** http://nopr.niscair.res.in/handle/123456789/7360 ISSN: 0975-0983 (Online), 0376-4699 (Print).
8	**Rupesh Kumar** and Mohamad Yusuf	Photolysis of some 2-butenyl/butynylbischromones: Effect of solvent polarity Photochemistry of some 2-butenyl/butynyl-bischromones has been investigated in benzene and isopropanol-THF (1:1). The photoreactions are initiated through the intramolecular H-abstraction that leads to the formation of tetracyclic derivatives and vinyl bischromones. Photolytic conversion of the bischromones is found to be dependent upon the nature of the intermediate spacer and H-donating capability of the solvent.	Organic Communications, **2009**, 2(1), 7-19. **(ACG, IF 0.52)** https://www.acgpubs.org/doc/201808021915332_OC-0810-53.pdf ISSN: :1307-6175
7	Mohamad Yusuf, **Rupesh Kumar**, S. C. Gupta	Photocyclisations of some 3-alkoxy-2-thienylchromones Photoreorganisations of some 3-allyloxy-2-thienylchromones have been described. The photoreactions are initiated through the intramolecular H-abstraction to provide angular tetracyclic compounds. These chromones yield good chemical efficiency due to the involvement of highly stabilized allylic 1,4-biradicals.	Journal of Heterocyclic Chemistry, **2008**, 45(4), 963-968. **(Wiley, IF 2.193)** https://doi.org/10.1002/jhet.5570450403 ISSN: 1943-5193
6	**Rupesh Kumar** and Mohamad Yusuf	Photochemical reactions of some 3-allyloxy-2-phenylchromones have been studied. Photoreactions of the compounds afforded substituted pyronopyrane derivatives through the 1,4-biradicals.	Organic Communications, **2008**, 1(3), 39-47. **(ACG, IF 0.52)** https://www.acgpubs.org/doc/201808021735166_OC-0807-32.pdf ISSN: :1307-6175
5	**Rupesh Kumar** and Mohamad Yusuf	Photolysis of some 3-alkoxy-2-thienylchromones Photo induced cyclisation of some 3-alkoxy-2-thienylchromones has been described. The photoreactions occur through intramolecular H-abstraction by the carbonyl group to provide 1,4- biradical that yield dihydrocyclised and dehydrocyclised	ARKIVOC, **2007**, XVI, 227-237. **(ARKAT, USA IF 1.14)** https://doi.org/10.3998/ark.5550190.0008.g22

		compounds. The total photolytic conversion and stereochemistry of the dihydrocyclised products are controlled by the nature of substituents present at the carbon undergoing photo H-abstraction	ISSN: 1551-7012
4	Mohamad Yusuf, **Rupesh Kumar**, W R Bansal, Ritu	Photocyclisations of some 3-alkoxychromones: Substituent control on photoreactivity The photochemical transformation of some 3-alkoxy-2-phenylchromones bearing various stabilizing substituents on the 3-alkoxy group have been described. In these studies, photoreactions occur through the 1,4-biradicals that yield angular tetracyclic products. The yield and distribution of the photoproducts are dictated by the nature of substituents of 3-alkoxy moieties.	Indian Journal of Chemistry B, **2007**, 46B(11), 1860-1867. **(CSIR IF 0.592)** http://nopr.niscair.res.in/handle/123456789/713 ISSN: 0975-0983 (Online), 0376-4699 (Print).
3	Ritu Bala, **Rupesh Kumar**, Mohamad yusuf, W R Bansal	Photochemistry of 6-chloro-3-hydroxy-2-(2'-thienyl)- 4-oxo-4H-1-benzopyran On photolysis of the titled compound around its λmax (360 nm), it rearranges to 6-chloro-3-hydroxy-3-(2'-thienyl)-1,2-indandione as analysed by IR, NMR and by coupling with o-phenylenediamine. Quantitative analysis of the photolysed mixture by spectral measurements also confirms it. Quantum yield of the product is low (~0.05), which is not affected by the polarity of the solvent.	Indian Journal of Chemistry A, **2007**, 46A(9), 1440-1444. **(CSIR IF 0.491)** http://nopr.niscair.res.in/handle/123456789/2173 ISSN: 0376-4710
2	**Rupesh Kumar** and Mohamad Yusuf	Chromones and bischromones: an account of photoinduced reactions This account provides a survey of phototransformations of chromones occurring through the cycloadditions, oxidations, isomerizations and reorganizations. Photochemistry of the variety of bischromones occurring through intramolecular photo-H-abstractions and thus leading to angular tetracyclic photoproducts has also been reviewed. In the bischromones, the photoproduct formations and their distributions were found to be dependent upon the length and structure of the intermediate spacer units.	ARKIVOC, **2006**, IX, 239-264. **(ARKAT, USA IF 1.14)** https://doi.org/10.3998/ark.5550190.0007.908 ISSN: 1551-7012
1	Mohamad Yusuf, **Rupesh Kumar** and S. C. Gupta	Photochemical transformations of 1,10-decylbischromones: effect of spacer length Photocyclizations of 1,10-decylbischromones occurring through intramolecular H-abstractions involving 1,4-biradicals have been described. Here, the length of the extended spacer unit has affected the yield and distribution of the photoproducts	ARKIVOC, **2006**, XV, 28-36. **(ARKAT, USA IF 1.14)** http://dx.doi.org/10.3998/ark.5550190.0007.f04 ISSN: 1551-7012

PhD Students:

1.	Ms. Monika Thakur	Currently working on photo-catalytic water remediation.	Submitted, 2022
2.	Mr. Gobind Kumar	Working on visible light promoted methodologies for the synthesis of biologically significant scaffolds.	Enrolled

M.Sc. Dissertations (Completed)

S.No.	Student's name	Reg. no.	Year	Area
1.	Swati Thakur	1833800	2021	Green synthesis of benzimidazoles, benzoxazoles and benzothiazoles using

				photochemical approach
2.	Gobind Kumar	1731971	2019	Photochemical synthesis of 1,4-dihydropyridines and 3,4-dihydropyrimidin-2(1H)-ones using primary alcohols
3.	Tamanjeet Kaur	1731985	2019	Mechanochemical synthesis of 3,4-dihydropyrimidinones by using graphene oxide as catalyst
4.	Sarabprit Singh	1735589	2019	Green synthesis of Ag(0)/Fe(0)/Fe3O4/rGO nanocomposite by camellia sinensis leaf extract: Applications in the removal of organic pollutants
5.	Diksha	1634016	2018	Chlorophyll catalyzed synthesis of 2-substituted benzazoles
6.	Diksha	1634017	2018	One pot multicomponent synthesis of 3,4-dihydropyrimidin-2(1H)-ones: Concentrated solar radiation catalyzed Biginelli reaction
7.	Mandeep Kaur		2017	Facile and efficient aerobic one pot synthesis of benzimidazoles using NiFe2O4 nanocatalyst
8.	Manisha Koundal		2017	Sunlight mediated metal free photocatalytic synthesis of benzimidazole derivatives

Orientation / Refresher courses

S.No.	Course	From-To	Attended at
1.	Refresher course in Environmental Sciences (ID)	10.12.2019-23.12.2019	UGC-HRDC, GNDU Amritsar
2.	Orientation Course	16.11.2015-14.12.2015	UGC-HRDC, GNDU Amritsar

Research Project

S.No.	Title	Funding agency	Funding amount	Duration of the project	Status
1	Design and development of reagentless photochemical and mechanochemical methodologies for the synthesis of biologically potent heterocycles	SERB, New Delhi	18,30000/-	3 years (17.10.2022-16.10.2025)	On-going

Programmes conducted:

S.No.	Responsibility	Type of Event	Title of the Event	Dates	Sponsoring agency
1	Co-ordinator	Faculty Development Programme	Advancements in the methodologies for the development of synthetic Materials	06.06.2022-11.06.2022	AICTE & IKGPTU

(Rupesh Kumar)