Department of Chemistry & Biochemistry

Akal College of Basic Sciences

Eternal University, Baru Sahib

Department of Chemistry & Biochemistry

- Department of Chemistry was established in 2010 under the aegis of Eternal University
- On 17th Dec. 2020, Department of Biochemistry was merged with Department of Chemistry
- Running undergraduate and postgraduate program
  - B.Sc. (Medical/ Non-medical)
  - B.Sc. (Hons.) Chemistry (closed 2020)
  - M.Sc. Chemistry
  - Ph.D. Chemistry

Catering the other Departments

Akal College of Engineering and Technology

B.Tech. Program

Course Name: Engineering Chemistry (ECHEM-101)

Department of Microbiology & Mathematics

B.Sc. (Hons.) Program

Course Name: Basic Organic Chemistry (CHEM-111)

Basic Inorganic Chemistry –I (CHEM-121)

Basic Physical Chemistry (CHEM-211)

Meet Our Faculty

				
Dr. B.S. Sohal **Professor, HoD & COE** **Ph.D. Biochemistry**	**Dr. Kamal Kishore** **Associate Professor** **Ph.D. Chemistry**	**Dr. Manpreet Singh** **Assistant Professor** **Ph.D. Chemistry**	**Dr. Anil Kumar** **Assistant Professor** **Ph.D. Chemistry**	**Dr Gaurav Bhakri** **Assistant Professor** **Ph. D. Animal Biochemistry**

Research Contributions

Faculty	Publications	Books Published	Citations	h-Index
Dr. B.S. Sohal	112	3 (Chapters)	--	--
Dr. Kamal Kishore	34	1 (Book) 1 (Chapter)	130	7
Dr. Manpreet Singh	14	3 (Chapter)	64	5
Dr. Anil Kumar	21	2 (Chapter)	48	5
Dr. Gaurav Bhakri	12	1 (Chapter)	85	5

Ph.D. Students

Scholar	Title of PG research	Major advisor	Progress
Dr. Sukhdeep Singh (BS10PSCH001)	Chemical combustion and hydrothermal synthesis of $Ni_{1-x}Zn_xFe_2O_4/SrFe_2O_4$ and $Ni_{1-x}Zn_xFe_2O_4/BaTiO_3$ nanostructures: structural, electrical, magnetic and multiferroic properties	Dr. N. K. Rehlan (Major) Dr. K.C Verma (Co-Major)	Awarded 2014
Dr. Manpreet Singh (BS10PSCH002)	Synthesis, characterization and catalytic oxidation studies of nanosized cobalt oxide, copper oxide and their composites	Dr. N. K. Rehlan	Awarded 2015
Dr. Renu Bala (BS12PSCH002)	Synthesis, characterization and evaluation of 4-functional pyrazoles and their derivative	Dr. Karan Singh	Awarded 2018
Poonam Kumari (BS14PSCH001)	Synthesis and Spectral Studies of 4-Functional Pyrazolylthiazoles and their Biological Investigation	Dr. Karan Singh	Result Awaited

Ph.D. Students Cont.

Scholar	Title of PG research	Major advisor	Progress
Sumit Sood (BS15PSCH001)	Synthesis of some noval pyrazole derivatives using 4-formyl pyrazole as scaffold	Dr. Karan Singh (Major) Dr. Kamal Kishore (Co-Major)	Awarded 2021
Harshita Phougat (BS18PSCH001)	Synthesis of some novel 1,3,4-trisubstituted pyrazole derivatives of potential biological interest	Dr. Karan Singh	Comprehensive pending
Jaswinder Kaur (BS21PCH001)	Proposed: Ionic liquids/ Cationic surfactants	Dr. Kamal Kishore	Course Work
Roheela Farzeen (BS21PCH002)	To be decided	To be alloted	Course Work

Thesis Completed By M.Sc. Students

Student	Registration No.	Supervisor	Title of Project
Sobhi Rai	BS12MSC001	Dr. M S Chandrawat	A comparative study of anti-tubercular chemotherapeutic agents with some innovative trials
Rakesh Kumar	BS13MSC001	Dr. Vishal Kumar & Dr. Karan Singh	Phytochemical investigation of Tinospora cordifolia for biologically active compounds
Sumit Sood	BS13MSC002	Dr. Karan Singh	Synthesis, Characterization and Biological evaluation of some Potent Benzimidazole based 2-Aminothiazoles
Himanshi	BS14MSC001	Dr. Kamal Kishore & Dr. Karan Singh	Synthesis and characterization of pyrazole based N-protected β-amino ketones
Rashi Arora	BS14MSC002	Dr. Karan Singh	Synthesis and characterization of novel 3,4-dihydroquinolinone derivatives by Beckmann/Schmidt rearrangement

Thesis Completed By M.Sc. Students Cont.

Student	Registration No.	Supervisor	Title of Project
Aneet Kamal Kaur	BS15MSC001	Dr. Karan Singh	Synthesis of novel tetrahyroindazole derivatives via Vilsmeier-Haack reaction
Kritika Sharma	BS15MSC003	Dr. Kamal Kishore	Ultrasonic study and rheological properties of Glycerol Monostearate
Meena Kumari	BS15MSC004	Dr. Karan Singh	Synthesis and characterization of some novel pyrazole derivatives
Sujata Negi	BS15MSC005	Dr. Kamal Kishore	Determination of critical micellar concentration and molecular interactions of Stearalkonium Chloride

Thesis Completed By M.Sc. Students Cont.

Student	Registration No.	Supervisor	Title of Project
Chetna Bhatia	BS16MSC001	Dr. Kamal Kishore	Synthesis, surface active and thermal properties of cellulose based surfactants
Gagandeep Kaur	BS16MSC002	Dr. Manpreet Singh	Synthesis, characterization and studying multiferroic properties of Cr substituted $BiFeO_3$ nanostructures
Harshita Phougat	BS16MSC003	Dr. Karan Singh	Synthesis, isolation and characterization of (Pyrazol-4-yl)acetic acid derivatives
Pooja Kumari	BS16MSC004	Dr. Manpreet Singh	Synthesis, characterization and investigating multiferroic effects in $BiFeO_3$ with Mn doping
Vinit Sharma	BS16MSC006	Dr. Kamal Kishore	Synthesis, thermal stability and surface activity of imidazolium monomeric surfactants

Thesis Completed By M.Sc. Students Cont.

Student	Registration No.	Supervisor	Title of Project
Navjot Kaur	BS17MSC002	Dr. Karan Singh	Synthesis and characterization of some novel indeno based pyrimidine sulphonamide derivatives
Pawandeep Kaur	BS17MSC003	Dr. Karan Singh	Synthesis and characterization of some noval indeno [1,2-d] pyrimidine-2 amines
Pratibha	BS17MSC004	Dr. Karan Singh	Synthesis and characterization of some noval indeno based pyrimidine urea derivatives
Richa Sharma	BS17MSC005	Dr. Manpreet Singh	Synthesis, characterization multiferroic $BiFeO_3$ / $CoFe_2O_4$ nanocomposites and their application in hydroelectric cell
Kajal Sharma	BS17MSC006	Dr. Kamal Kishore	Synthesis, thermal stability and surface activity of piperidinium gemini surfactants

Thesis Completed By M.Sc. Students Cont.

Student	Registration No.	Supervisor	Title of Project
Harpreet Kaur	BS18MSC001	Dr. Anil Kumar	Synthesis, isolation and characterization of some novel 1,4 dihydroindeno[1,2-c] pyrazole-3-carboxylic acid dervatives
Kajal Sharma	BS18MSC002	Dr. Karan Singh	Synthesis, isolation and characterization of some novel chalcones using 1*H* pyrazole-4-carbaldehydes
Meenakshi Sharma	BS18MSC004	Dr. Kamal Kishore	Removal of synthetic dyes from aqueous solutions using Mn_3O_4 nanoparticles: adsorption kinetics and isotherms study

Thesis Completed By M.Sc. Students Cont.

Student	Registration No.	Supervisor	Title of Project
Jaswinder Kaur	BS19MSCH001	Dr. Kamal Kishore	Evaluation of surface active properties and micellization behaviour of imidazolium gemini surfactants
Mehak Panwar	BS19MSCH002	Dr. Manpreet Singh	Synthesis and characterization of Magnesium Oxide nanoparticles for the removal of toxic dyes from water
Shikha	BS19MSCH003	Dr. Anil Kumar	Synthesis and characterization of some nitrogen containing heterocyclic compounds

Ongoing Projects by M.Sc. Students

Student	Registration No.	Supervisor	Title of Project
Swinky Pathaniya	BS20MSCH001	Dr. Kamal Kishore	Effect of hydrophobic chain length on interfacial properties and thermodynamic aspects for self assembly of methyl-imidazolium monomeric surfactants
Dakshita Thakur	BS21MCH001	Dr. Manpreet Singh	To be decided soon
Mamta Devi	BS21MCH001	Dr. Anil Kumar	To be decided soon

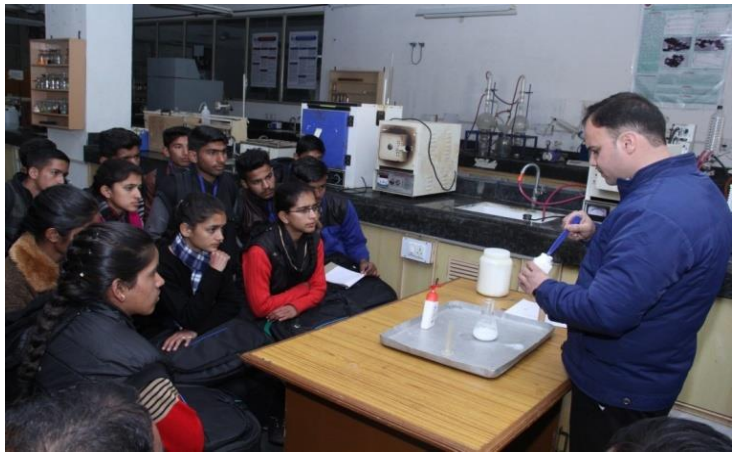
Achievements

- **Successfully completed one project which was funded by DRDO**
- **Project Title:** Synthesis of materials having high magnetic values applicable for lower microwave frequency region
- **Project Cost:** 9.8 Lakhs
- **Outcome of the Project:**
  - Successfully synthesize the Nanomaterials having high magnetic values which is applicable for lower microwave frequency region
  - The target material was desired by DRDO for STEALTH TECHNOLOGY needed for personnels, aircrafts, ships, submarines, missiles and satellites to make them less visible

Achievements cont.

INSPIRE Internship Science Camp

- Sponsored by DST, Govt. of India (3rd -9th January 2018).
- 101 students studying in Std XI participated



Achievements cont.

Industrial Visit by M.Sc. Students

- Industrial Visit organized on 4th April 2016 to Dagon Pharmaceutical Pvt. Ltd. Distt.-Solan, Himachal Pradesh, 174101. This plant is certified with WHO, GMP, ISO 9001:2008CGMP certifications.

Achievements cont.

Industrial Visit by M.Sc. Students

- Industrial Visit organized on 26th May 2018 to Continental Caps and Crown Pvt. Ltd. Distt.-Solan, Himachal Pradesh, 174101

Conferences/Workshops/Seminars by the Students

9th Indian Youth Science Congress at NIT, Hamirpur

Poster presentation by the students

Conferences/Workshops/Seminars by the Students

Poster presentation by the students

Laboratory work by the students

Co-scholastic activities

Cultural activities

Sports activities

Co-scholastic activities

2nd Prize for model making on Science Day

Swachhata Pakhwada

Co-scholastic activities

Stage drama performance

Ban of single use of plastic

Thrust Areas of Research

- **Surfactants Chemistry**

  Synthesis of renewable fatty acids mediated cationic surfactants with their potential physical properties

- **Nanotechnology**

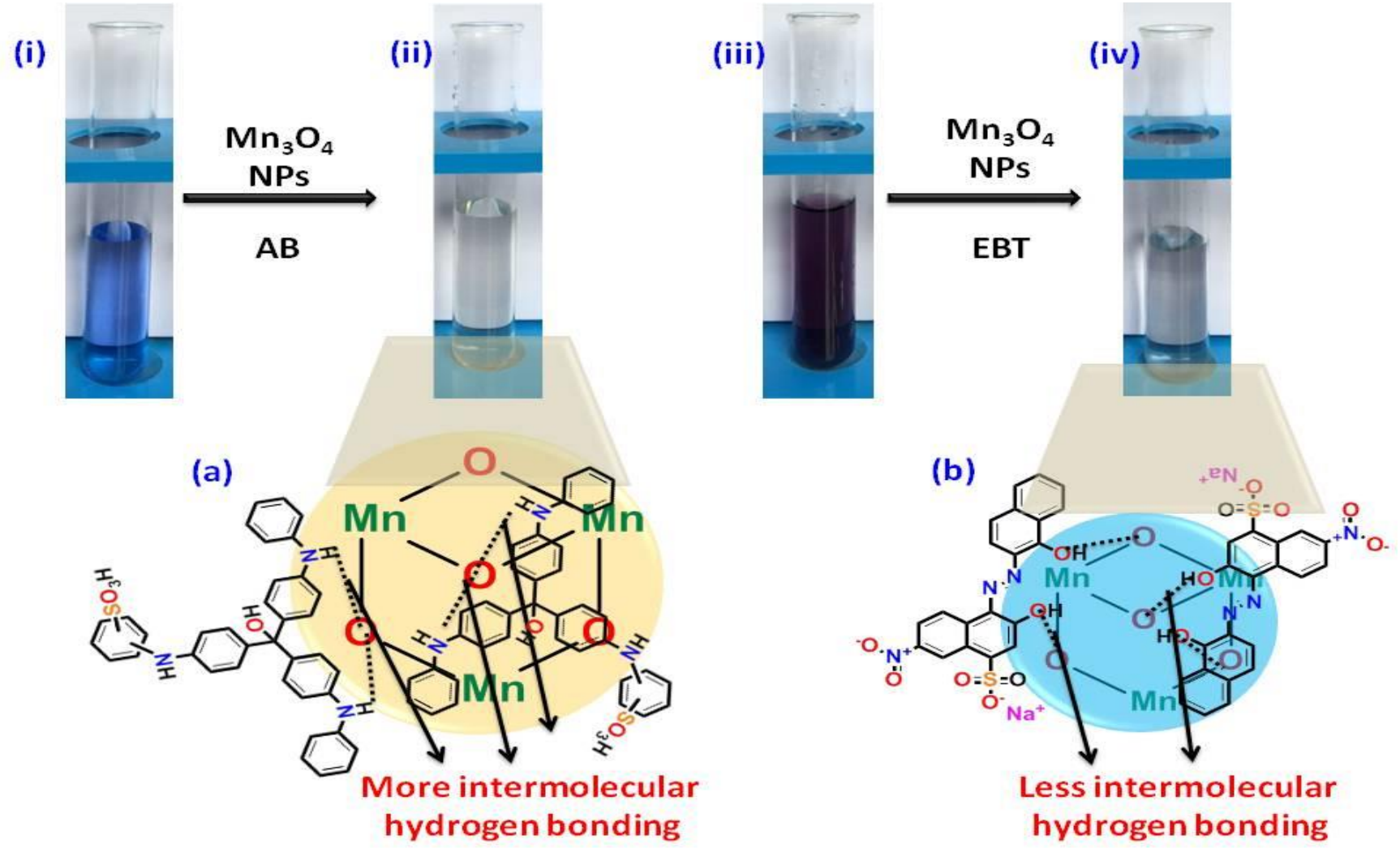
  Synthesis of Nanomaterials for their use in water purification applications

- **Heterocyclic Chemistry**

  Synthesis of Heterocyclic compounds using, Green chemistry, microwave etc. and their biological evaluation

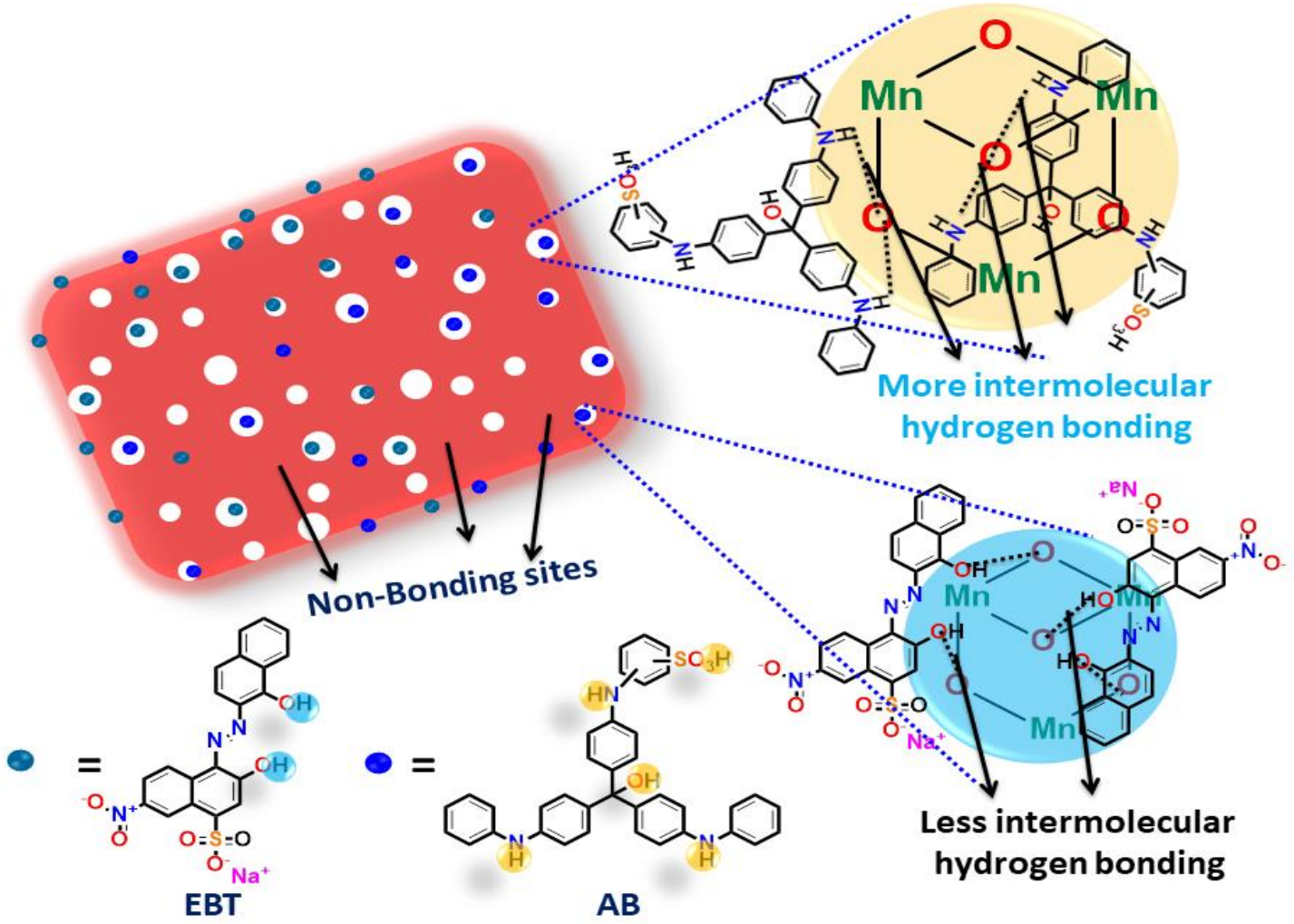
Present research work

Nanotechnology for the dye removal

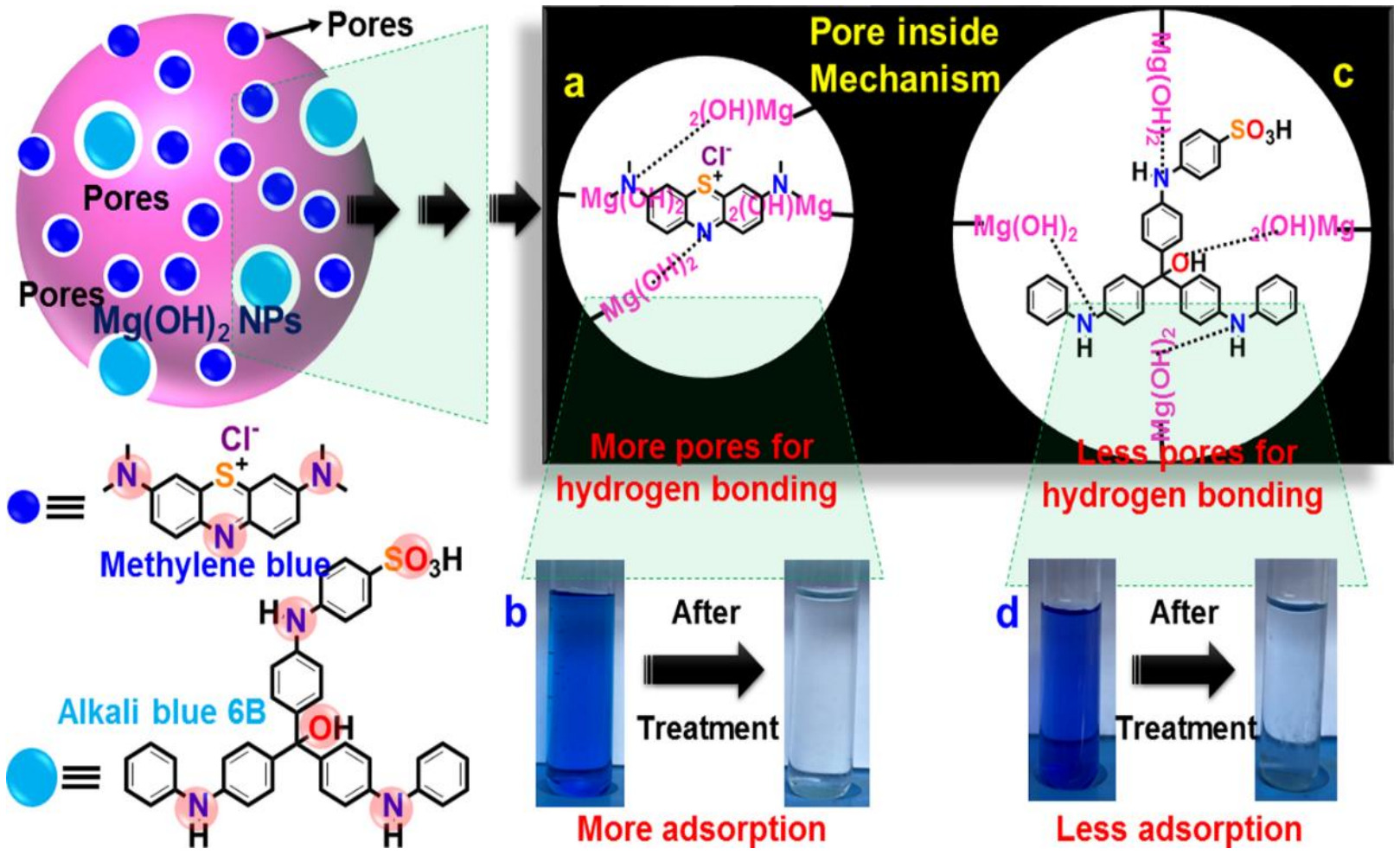


Present research work

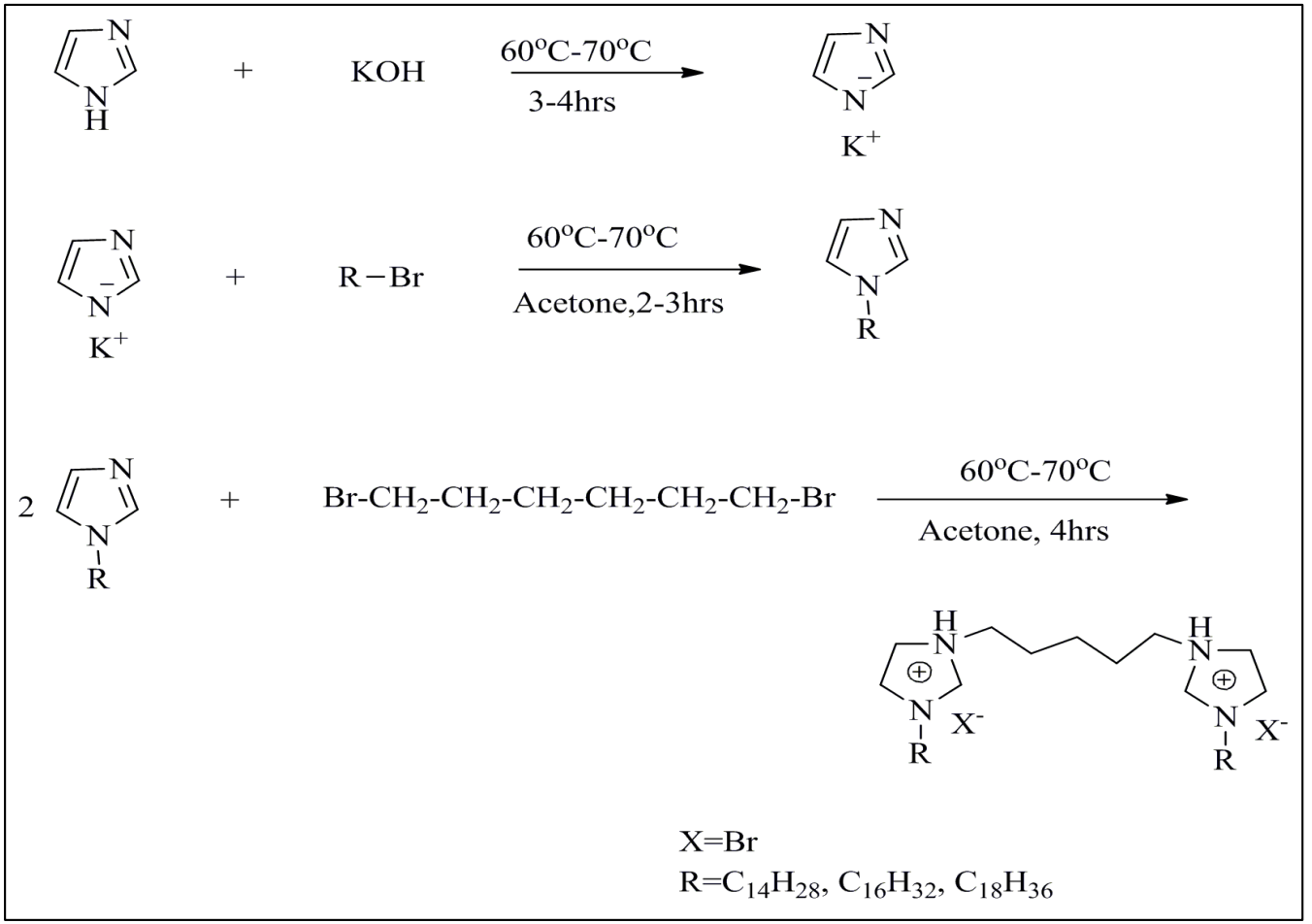
Nanotechnology for the dye removal



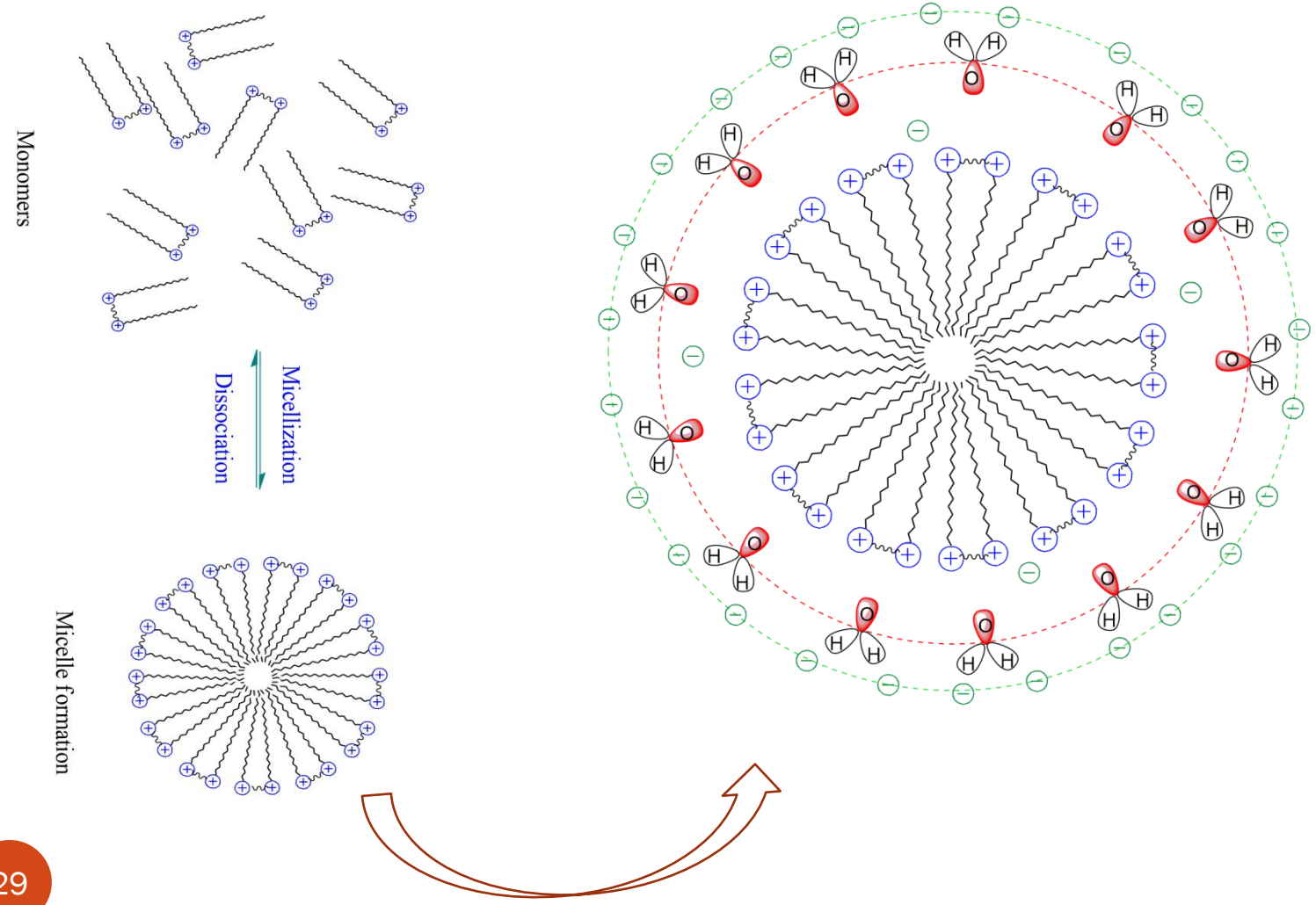
Nanotechnology for the dye removal



Evaluation of surface active properties and micellization behaviour of imidazolium gemini surfactants



EVALUATION OF SURFACE ACTIVE….



Students Placement

Student Name	Designation	Name of Organization
Dr. Sukhdeep Singh Ph.D. in 2014	Assistant Professor	Department of Chemistry, Govt. Degree College, R.S. Pura, Jammu
Dr. Manpreet Singh Ph.D. in 2015	Assistant Professor	Department of Chemistry, ACBS, Eternal University, Baru Sahib
Dr. Renu Bala Ph.D. in 2019	Assistant Professor	Gautam Girls College, Hamirpur (H.P.)
Dr. Sumit Sood Ph.D. in 2021	Chemist	Pharmaffiliates Analytics & Synthetic (P) Ltd. Plot 225, Industrial Area Phase II, Panchkula, Haryana-134109
Mr. Rakesh Kumar M.Sc. in 2015	TGT	GMS Bhalag u/c GSSS Bhanog Edu. Block Rajgarh, Himachal Pradesh

Students Placement Cont.

Student Name	Designation	Job Profile
Ms. Himanshi M.Sc. in 2016	Research Associate	Jubilant Chemsys Limited, Noida
Rashi Arora M.Sc. In 2016	PGT	Miri Piri Khalsa Academy, Ratanpura (Nawab Ganj)-Gadarpur- Distt Udham Singh Nagar- Uttarakhand
Aneet Kamal Kaur M.Sc. In 2017	Student	Doing PG from Abroad
Kritika Sharma M.Sc. In 2017	PGT	Teaching in Pvt. School
Meena Kumari M.Sc. In 2017	PGT	Teaching in Pvt. School
Sujata Negi M.Sc. In 2017	Research Scholar	Pursuing Ph.D.

Students Placement Cont.

Student Name	Designation	Job Profile
Chetna Bhatia M.Sc. In 2018	Research Scholar	Doing PG from Abroad
Gagandeep Kaur M.Sc. In 2018	Research Scholar	Doing PG from Abroad
Harshita Phougat M.Sc. In 2018	Research Scholar	Pursuing Ph.D.
Pooja Kumari M.Sc. In 2018	Student	NET coaching
Vinit Sharma M.Sc. In 2018	Research Scholar	Pursuing Ph.D.

Students Placement Cont.

Student Name	Designation	Job Profile
Navjot Kaur M.Sc. In 2019	Research Scholar	Doing PG from Abroad
Pawandeep Kaur M.Sc. In 2019	Research Scholar	Doing PG from Abroad
Pratibha M.Sc. In 2019	Research Scholar	Doing PG from Abroad
Richa Sharma M.Sc. In 2019	Student	NET coaching
Kajal Sharma M.Sc. In 2019	TGT NM	School teaching

Students training at GVK Biosciences Pvt. Ltd. Hyderabad, Telangana

Student Name	Registration No.	Year of Working
Ms. Himanshi	BS14MSC001	Jan 2016 to June 2016
Ms. Rashi Arora	BS14MSC002	Jan 2016 to June 2016
Aneet Kamal Kaur	BS15MSC001	Jan 2017 to May 2017
Meena Kumari	BS15MSC004	Jan 2017 to May 2017
Harshita Phougat	BS16MSC003	Jan 2018 to May 2018
Mr Sumit Sood	BS15PSCH001	Jan 2018 to May 2018

Students training at GVK Biosciences Pvt. Ltd. Hyderabad, Telangana

Student Name	Registration No.	Year of Working
Navjot Kaur	BS17MSC002	Jan 2019 to June 2019
Pawandeep Kaur	BS17MSC003	Jan 2019 to June 2019
Pratibha	BS17MSC004	Jan 2019 to June 2019
Harpreet Kaur	BS18MSC001	Jan 2020 to May 2020

Perspective Plans

- Faculty training for value- added skill courses
- Enhancement of more research facilities by identifying potential funding agencies for projects/research activities
- More focus on collaborative research with reputed institutions/industries
- Curriculum updating to meet present market demands so that our students get more job opportunity.

Career Opportunities in Chemistry

Science in the 21st century is rich with opportunities and challenges. With the aforementioned teaching and research infrastructure excellence, graduates from the Chemistry department have their wings to fly in multi-sectors with excellent opportunities. Unlike other universities and institutions, we are guiding to research students in the novel and innovative research methodologies with scientific skills, which eventually enhances the research abilities to build their careers. It is a well-known fact that Chemistry and chemical reactions are moreover directly and indirectly linked to every aspect of human life. Therefore every master's degree holder has divergent future scopes in multi directions as follows:

- **Doctoral Research Positions (International and national)**
- **JRF Positions in National Laboratories**
- **Academic Positions in Science and Engineering Institutions**
- **Scientists in Pharmaceutical Companies**
- **Other government jobs as per the student's desire**
- **Civil services**
- **Faculty positions at University levels**
- **Jobs at Analytical Instruments Manufacture Units**

THANK YOU