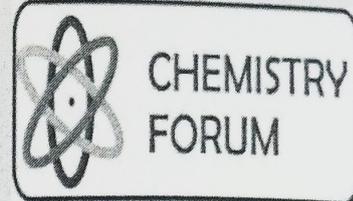




Maharani Lakshmi Ammanni College for Women Autonomous

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DEPARTMENT OF CHEMISTRY

AND

ARPAN ALUMNI ASSOCIATION

CORDIALLY INVITES FOR

ALUMNI TALK ON

The Role of Bioinorganic Chemistry in Modern Medicine



Deepika C

Assistant professor

KLE Society's S. Nijalingappa College, Bengaluru

VENUE: Golden Jubilee Seminar Hall

DATE: 7TH NOVEMBER 2025

TIME: 2:00PM - 3:00PM

Dr. SHARMISTHA DUTTA
DIRECTOR, mLAC

Dr. NANDA KULKARNI
PRINCIPAL, mLAC

Smt Divya B N
HOD
DEPT OF CHEMISTRY

Smt Sumanjali K
Dept Alumini Co-ordinator
DEPT OF CHEMISTRY

ALUMNI COORDINATOR: DR. BHAVYA BHANU

All are cordially welcome

Department of Chemistry

Report on Alumni Talk

Name of the Activity: Alumni talk

Title of the event: "The Role of Bioinorganic Chemistry in Modern Medicine"

Day & Date: 07-11-2025 Friday

Time: 2 pm -3 pm

Mode: Offline

Venue: Golden Jubilee Seminar Hall

Resource Person: Ms. Deepika C, Assistant Professor, Department of Chemistry, KLE's Society's Nijalingappa College, Bangalore

No. of Participants: 31

Brief summary of the activity:

Introduction:

The **Department of Chemistry** under **ARPAN ALUMNI ASSOCIATION** organized an insightful Alumni talk delivered by Ms. Deepika C on "**The Role of Bioinorganic Chemistry in Modern Medicine**". The seminar successfully highlighted the crucial role of bioinorganic complexes in sustaining life and advancing medicine. Role of Metals and Their Complexes in Medicine

- **Iron (Fe) in Hemoglobin:**
Iron is the central metal ion in hemoglobin, responsible for reversible oxygen binding. It plays a vital role in oxygen transport from lungs to tissues. Iron deficiency leads to anemia, a major global health issue.
- **Cobalt (Co) in Vitamin B₁₂:**
Cobalt is the core metal in vitamin B₁₂, essential for DNA synthesis and nervous system function. The Co-C bond in cobalamin enables enzymatic reactions vital for metabolism.
- **Zinc (Zn) and Magnesium (Mg) in Antacids:**
Zinc carbonate and magnesium hydroxide are active ingredients in antacids that neutralize excess stomach acid. Zn²⁺ also aids wound healing and exhibits antibacterial activity.
- **Metal-Curcumin Complexes:**
Curcumin, the active compound in turmeric, forms complexes with metals like Cu,

Zn, Ni, and Fe. These complexes show enhanced **antibacterial, antimicrobial, anti-inflammatory, anticancer, and antioxidant** activities compared to curcumin alone.

- **Gadolinium(III) and Manganese(II) in MRI:**

Gd(III) and Mn(II) ions are used as contrast agents in Magnetic Resonance Imaging (MRI). They enhance image contrast by altering relaxation times of nearby water protons, improving diagnostic clarity.

- **Copper (Cu) and Gallium (Ga) in PET Imaging:**

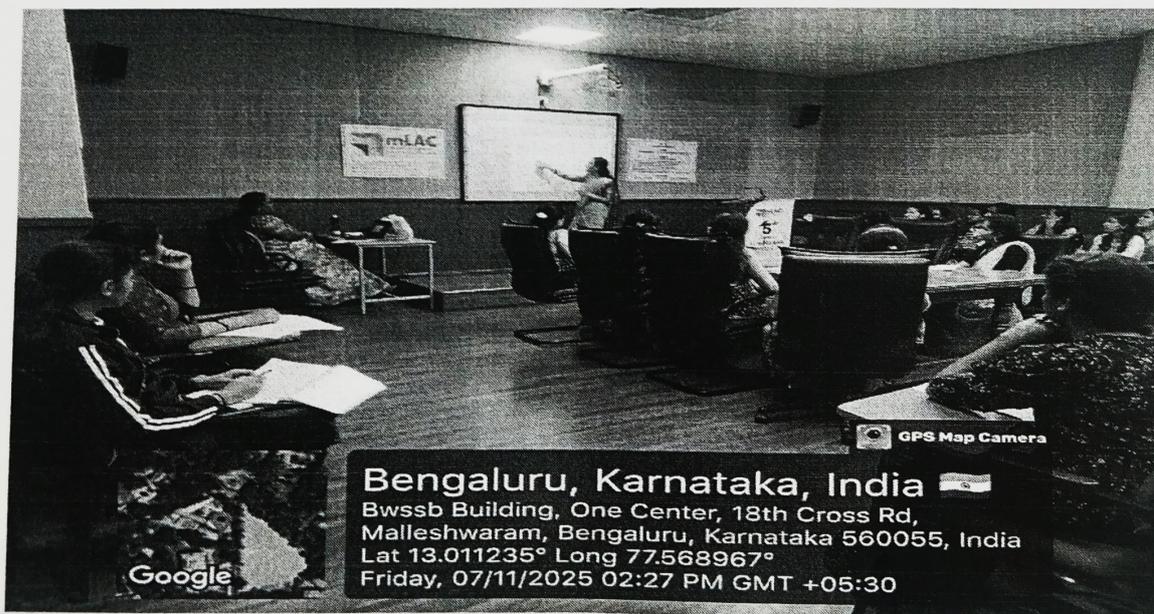
Radioisotopes such as ^{64}Cu and ^{67}Ga are used in Positron Emission Tomography (PET) for disease diagnosis and metabolic studies. These isotopes provide high-resolution imaging in oncology and cardiology.

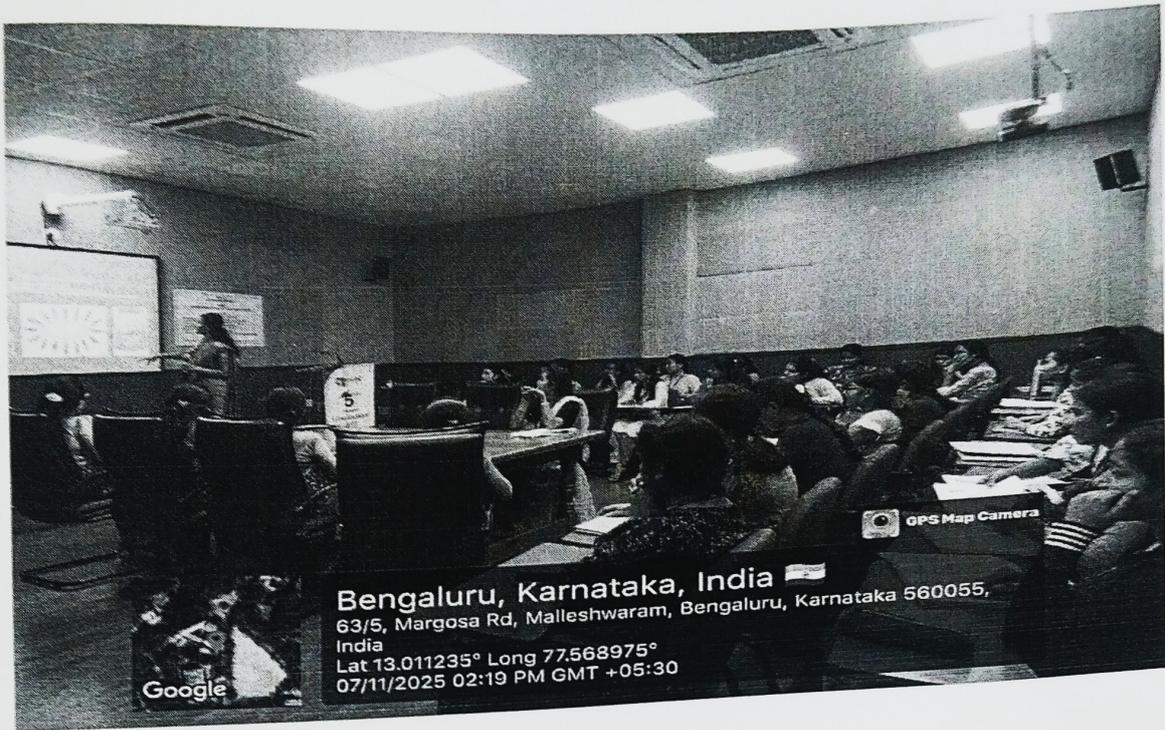
- **Fe, Cu, and Zn in XFM and LA-ICP-MS Techniques:**

Advanced analytical methods like X-ray Fluorescence Microscopy (XFM) and Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) are used to detect and map metal ions in biological samples. These techniques help understand the role of metals in diseases such as Alzheimer's and cancer.

Outcome of the Seminar

- The seminar enhanced understanding of the **biological importance and medical applications of metal ions**.
- Participants gained insights into **modern imaging and analytical techniques** involving bioinorganic complexes.
- The session emphasized the **potential of metal-based drugs and diagnostic agents** in developing new medical treatment.





Sumayya K
Organising secretary

Deviya B
Head of Department

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Principal

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