

ANDHRA CHRISTIAN COLLEGE, GUNTUR
Department of Chemistry
Seminar Report

Topic: Optical Isomerism in Coordination Complexes

Date: 03 – 02 – 2021

Introduction: The department of chemistry, Andhra Christian College, Guntur, organised a seminar on Optical isomerism in coordination complexes. Dr. K. Nirmala Jyothi, HOD of Chemistry, J.M.J. college, Tenali, was invited as the resource person. The seminar was convened by Dr.N.J.Solomon Babu, Head of the department of chemistry.

Objectives of the seminar: The primary objectives of the seminar are,

1. To enlighten the students the basic concepts of optical isomerism and its applications in coordination complexes.
2. To have an exhaustive discussion on the topic, with illustrations.
3. To bring awareness among the students on the scope of the subject and possible areas of research.

Seminar Proceedings: The seminar began in J.D.Seelam seminar hall by 11 A.M. Dr.N.J.Solomon Babu, HOD of chemistry, introduced the theme of the seminar. Mrs.P.Anitha Pranuthi introduced the resource person of the day. Dr. K. Nirmala Jyothi gave extensive talk on optical isomerism with good number of examples. This is followed by active interaction of the students.

Key points covered:

Optical Isomerism in Coordination Compounds:

Optical isomers are related as non-superimposable mirror images and differ within the direction with which they rotate plane-polarised light. These isomers are mentioned as enantiomers or enantiomorphs of every other and their non-superimposable structures are described as being asymmetric.

For structures that don't possess a plane of symmetry, the mirror images aren't superimposable. Referred to as chiral structures, such molecules rotate a beam of polarised light.

- If the beam is rotated to the proper (when looking along the beam within the direction of propagation), the substance is claimed to be dextrorotatory (or simply Dextro) and indicated by (+).
- The substances that rotate the plane of polarised light to the left are called levorotatory or Levo and are denoted by (-).
- Racemic mixtures produce no net rotation of the polarised light when equal amounts of each form are mixed together.

Dichlorobis (ethylenediamine) cobalt (II) exists in two geometrical isomers. For the trans isomer, there's a plane of symmetry that bisects the cobalt ion and therefore the ethylenediamine ligands, leaving one Cl on either side of the plane. However, the cis isomer has no plane of symmetry. Thus, two optical isomers exist.

The existence of coordination compounds with an equivalent formula but different arrangements of the ligands were crucial within the development of coordination chemistry. Two or more compounds with an equivalent formula but different arrangements of the atoms are called isomers.

Because isomers usually have different physical and chemical properties, it's important to understand which isomer we are handling.

Interactive session:

The main presentation was followed by an interactive session, the students were allowed to ask questions and engage in discussions with the resource person Dr. K. Nirmala Jyothi. The students participated with enthusiasm, as it is informative and provided the students a deeper understanding about the topic.

Conclusion:

The seminar was concluded with vote of thanks by Mr. Y. Durga Prasad, senior lecturer in Chemistry. The students expressed their gratitude to Dr. K. Nirmala Jyothi for her valuable and informative presentation. The seminar successfully achieved its objectives, by increasing the awareness about the subject and motivating them for research.

Acknowledgements:

The Department of Chemistry, Andhra Christian College, Guntur, extends its heartfelt gratitude to Dr. K. Nirmala Jyothi for her valuable contribution to the

seminar. Special thanks to the faculty members and students for their active participation and support.



Isomers -

Same formula different properties. i.e., $N_2O \rightarrow NNO$ or NO_2

Structural isomer
 Coordination sphere isomer Linkage isomer

Stereoisomer
 Same atomic connectivity but different arrangement.

Geometrical isomer **Optical isomer**

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graph TD
    A["Isomers  
(Same formula, different properties)"] --> B["Structural isomers  
(different bonds)"]
    A --> C["Stereoisomers  
(Same bonds, different arrangements)"]
    B --> D["Coordination-sphere isomers"]
    B --> E["Linkage isomers"]
    C --> F["Geometrical isomers"]
    C --> G["Optical isomers"]
  
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Students attended the seminar

S.No.	Class No.	Name of the student	Signature of the student
1	601	K. Akhila	K. Akhila
2	602	M.Vajram	M. Vajram
3	603	S.Mahalakshmi	S. Mahalakshmi
4	605	B. Jyothi	B. Jyothi
5	611	K. Tulasiram	K. Tulasiram
6	612	Ch. Love Prasanna	Ch. Love prasanna
7	614	B. Prakash	B. Prakash
8	619	K. Kiran Kumar	K. Kiran kumar
9	621	R. Ravi Kiran	R. Ravi Kiran
10	624	M. Enosh	M. Enosh
11	901	B.Chinni	B. Chinni
12	904	A.Prabhavathi	A. prabhavathi
13	905	B. Yamini	B. Yamini
14	906	M. Roja Ramani	M. Roja Ramani
15	907	J. Divya	J. Divya
16	908	Y. Keerthana	Y. Keerthana
17	912	Ch. Ashok Kumar	Ch. Ashok Kumar
18	913.	Ch. Venkateswara Rao	Ch. Venkateswara Rao
19	914	B. Nagendra Babu	B. Nagendra Babu
20	1001	G. Keerthana Pushpalatha	G. Keerthana Pushpalatha


HEAD, CHEMISTRY DEPARTMENT
A.C. COLLEGE, GUNTUR.

ANDHRA CHRISTIAN COLLEGE, GUNTUR

(Day, Evening and PG)

NOTICE

Date: 02-02-2021

This is to inform that there will be a seminar on 'Optical Isomerism in Coordination Complexes' tomorrow, i.e., on 03-02-2021, conducted by the department of Chemistry, at 11 AM. Dr. K. Nirmala Jyothi, HOD of Chemistry, J.M.J. college, Tenali, will address the seminar.

All the students of I, II & III B. Sc. are instructed to attend the programme without fail.

P. Anita Susan

PRINCIPAL

ANDHRA CHRISTIAN COLLEGE
(Day, Evening & P.G)
GUNTUR

Copy to:

1. The coordinator, IQAC, Andhra Christian College
2. The office manager, Andhra Christian College

