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Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.oldgrt.lbp.world

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SYNTHESIS & CHARACTERIZATION OF COBALT COMPLEX WITH SALEN LIGAND

Prof. Hake R. V.
M. S. Kakade College, Someshwarnagar,
Pune. Maharashtra, India.

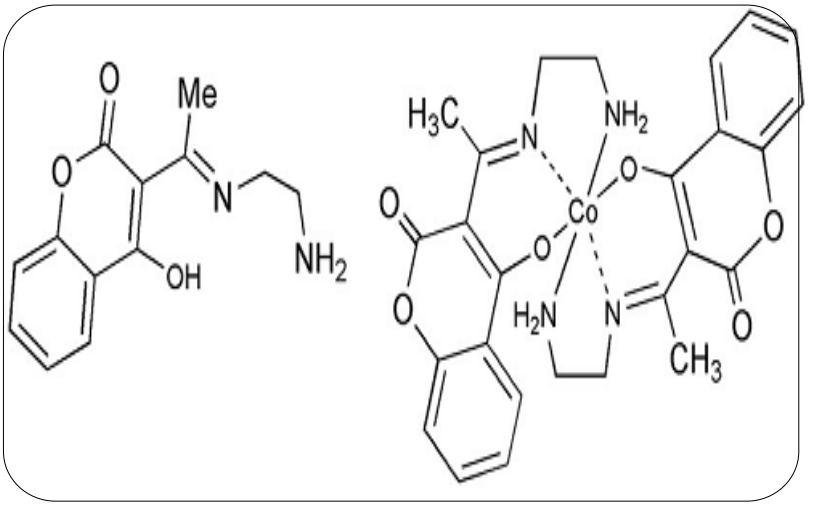
ABSTRACT :

Salen metal complexes are the interest of many workers because of their many applications in food industry ,in the treatment of cancer ,antibacterial agent .The antitumour activity of salen complex arises due to it's DNA binding properties . The salen complexes are conformationally flexible and adopt a variety of geometry .

KEYWORDS : Synthesis , Characterization of Cobalt , antitumour activity.

INTRODUCTION:

Also salen metal complex have a unique flat electron rich aromatic surface that facilitate their interactions with nuclic acids .The present investigation reports on the synthesis and spectral characterization of Co(II) complexe with salen ligand with UV- spectroscopy ,IR-spectroscopy,Magnetic study.



EXPERIMENTAL:-

Materials:

All chemicals employed for the synthesis were of analytical reagent grade and of highest purity available.

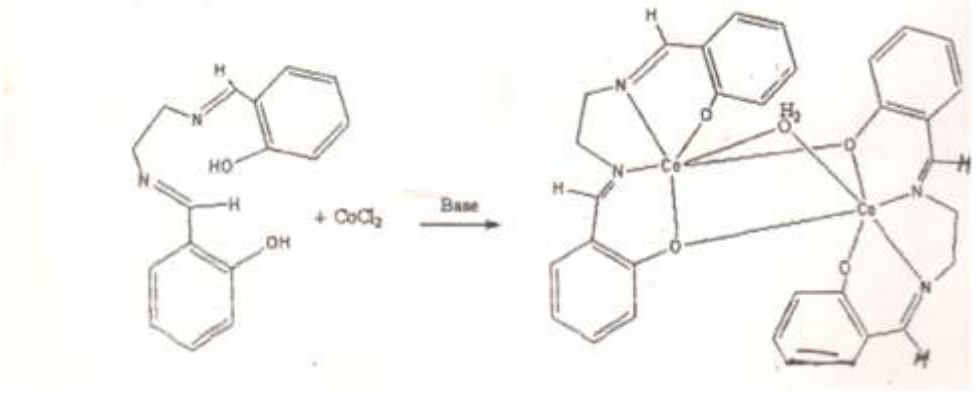
-Salicylaldehydrate
- Cobalt chloride hexahydrate
-Ethanol
-Ethylene diamine
- 1-Nitroso 2-naphthol
-Acetic acid
- Methanol

Method:-

Synthesis of cobalt salen complex-

Finely ground N,N'-disalicylidene ethylenediamine (salen) were dissolve in water and to this solution of sodium acetate trihydrate were added continue stirring for 10 to 15 minutes .While stirring was continued a solution of cobalt (II) chloride hexahydrate were dissolvedin hot water stir the reaction mixture until it turns to reddish brown paste.The reaction mixture was allowed to stand for 15 minutes .The yields were around 80% reddish brown complex is obtain.

Reaction:-



Result-

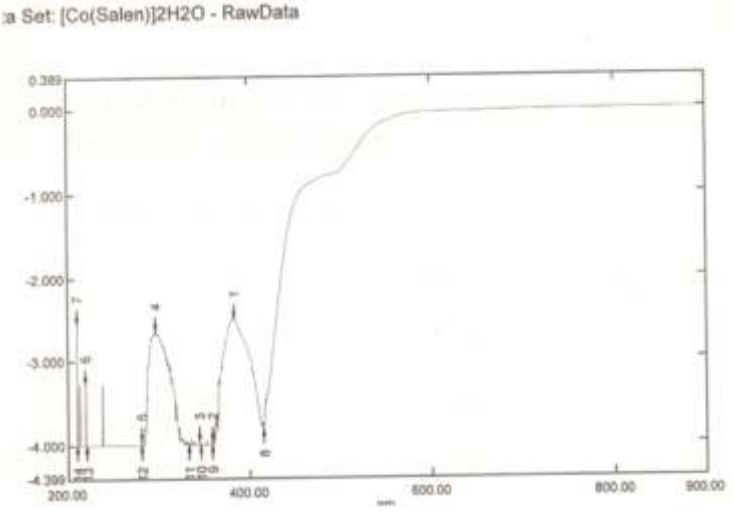
Purity of complex:-

Complex dissolved in 2N NaOH & distilled water by heating cobaltic hydroxide gets converted into cobaltic oxide.By using volumetric method Iodometric titration we get 98 % purecomplex contain cobalt.

UV-Spectroscopy:-

The visible & Uv spectra associated with transition between electronic energy levels. The transition is generally between bonding (loan pair orbital) & an unfilled non bonding (antibonding orbital)

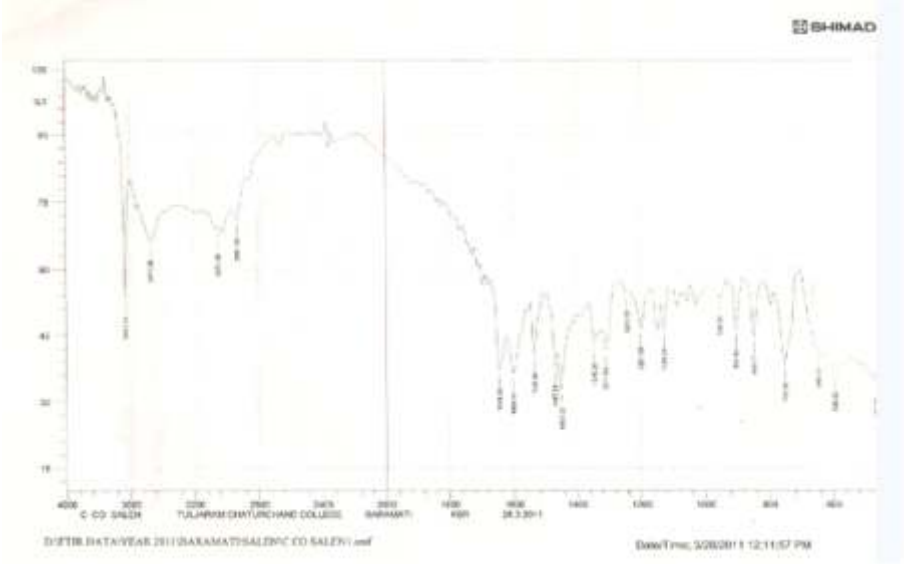
The highest energy gap found is an excitation of electrons from sigma bond.



Characterization of cobalt salene complex :- UV-Spectra

Sr. No.	Wavelength	Absorption
1	382.50	-2.497
2	357.50	-3.958
3	344.50	-3.962
4	296.50	-2.648
5	280.00	-3.964
6	220.00	-3.273
7	210.50	-2.545
8	415.50	-3.823
9	358.00	-4.000
10	345.00	-4.000
11	332.50	-4.000
12	280.50	-4.000
13	220.50	-4.000
14	211.00	-4.000

IR-Spectra of cobalt salen complex:-



Sr.no	Frquency	Ligand assignment
1	3200-3600	O-H (Bonded)
2	2868-3058	C-H Streching
3	648-746	Aromatic C= C
4	2200	C=N Streching

Magnetic susceptibility of cobalt salen complex shows that the complex contains one unpaired electron the complex is paramagnetic in nature.

DISCUSSIONS:-

Complex contains 98% cobalt. Presence of cobalt salen complex is proved by studding UV & IR Spectroscopy. In cobalt salen complex one unpaired electron so the nature of the complex is paramagnetic. Cobalt salene complex can be further studied for antimicrobial, antitumour anticancer

properties . This complex also can be studied for antimicrobial activity against many human pathogens. As cobalt salen complex binds easily with DNA & RNA,it can be used in genetical studies .It will be helpfull to study the genetic properties of any genome

REFERANCES:-

1) Lange's Handbook of Chemistry –John .A.Deean 11th Edition (p. No.4-84)
2) Inorganic chemistry, principle of structure and Reactivity 4th Edition –James E.Huheey, Ellen A. Keiter, Richard L.keiter (p.no.-459-468)
3) Spectrometric identifications of organic compounds 5th Edition –R.M.silverstain,G . Clayton Bassler Terence C. Morril (p.no.92-119)
4) Elements of magnetochemistry 2nd Edition –R.L. Datta & Syamal (p.no.-44-48,100)
5) Practicals in Inorganic chemistry –Dr. S.G.Date & Dr. P.G. pol
6) Spectroscopic methods in organic chemistry 4th Edition –Dudley H Williams Lan Fleming.

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Golden Research Thoughts
258/34 Raviwar Peth Solapur-413005,Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
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