

INTERNSHIP REPORT



A Report Submitted In Partial Fulfillment Of The Requirement For The
Award Of Degree Of
Bachelor Of Science
In
Chemistry
By
T.Kavitha (41030010) T. Karthika.

Acknowledgment

I Take This Opportunity To Thank Those Who Helped Me In Making This Project And For That, I Would Like To Express My Sincere Gratitude To Mr.Gurumoorthi ,Hon'ble Information Commissioner Who Spared Her Valuable Time And Helped Me Despite His Busy Schedule And Motivated Me During The Whole Duration Of My Internship. I Would Also Like To Express My Gratitude To Mr.Bakthavachalam (Dy.Registrar)Who Guided Me , And Provided All Support In Completing This Internship.

About Company

J. K. K. K.

Internal Examiner
HEAD, DEPARTMENT OF CHEMISTRY
SATHYABAMA
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(DEEMED UNIVERSITY)
Jeppiaar Nagar, Rajiv Gandhi Salai,
Chennai - 600 119

K. K. K.

External Examiner

NEBULAE HI-TECH LABORATORIES

41, Ekambara Naicker Industrial Estate,
Alapakkam, Porur, Chennai - 600 116.

REF.NO : NHL/05/09/2023

DATE : 27.09.2023

TO WHOMSOEVER IT MAY CONCERN

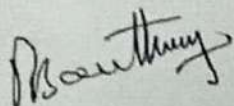
THIS IS CERTIFY THAT MS.KAVITHA .T [REGISTER NUMBER 41030010]
DOING B.Sc., CHEMISTRY FINAL YEAR IN SATHYABAMA INSTITUTE OF SCIENCE
AND TECHNOLOGY,CHENNAI-600 119 , HAS UNDERGONE INTERNSHIP IN OUR
LABORATORY FROM 11TH SEP' 2023 TO 27TH SEP'2023.

DURING THIS PERIOD SHE GOT TRAINING IN ANALYSIS OF RAW MATERIALS AND
THEIR FORMULATED PRODUCTS USING SOPHISTICATED INSTRUMENTS LIKE UV-
VISIBLE SPECTROPHOTOMETER AND LIQUID CHROMATOGRAPHY AND ALSO IN
GENERAL ANALYSIS.

SHE IS SINCERE IN HER WORK

HER CONDUCT IS SATISFACTORY.

FOR NEBULAE HI-TECH LABORATORIES,



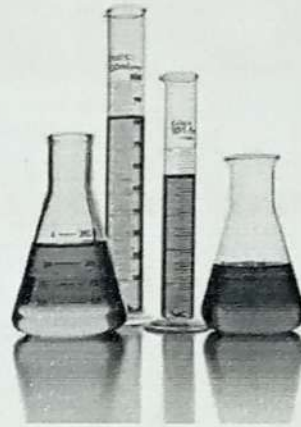
R.BAKTHAVACHALAM

MANAGER-ADMIN

NEBULAE HI-TECH LABORATORIES

No. 41, Ekambaram Industrial Estate
Alapakkam Porur
Chennai-600 116.

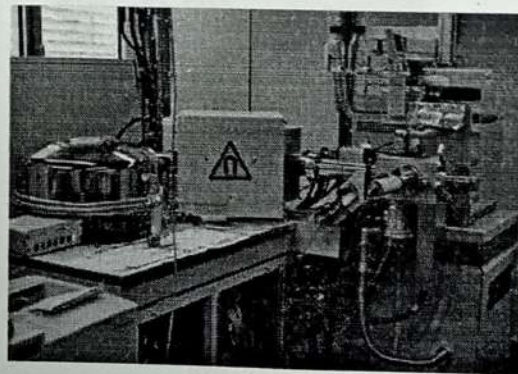
Nebulae Hi Tech Laboratories Is Areliaible Service Provider That Is Involved In Providing **Testing Services , Validation Services And Formulation Development Service**. We Are A Well Known Partnership Firm Which Is Incorporated In **The Year 2016** And Providing Reliable And Well Managed Services Across The Nation And In A Timely Manner.



TESTING SERVICE



Nutritional labelling testing
Services



gas chromatography testing
services

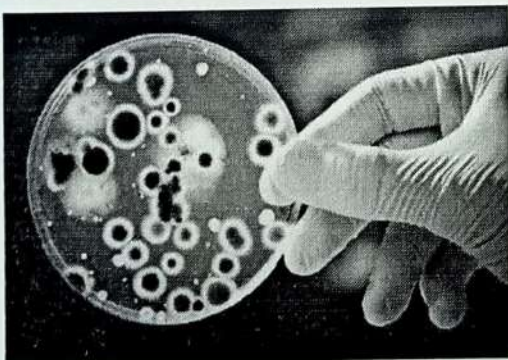


Tablet Testing Services



Pharmaceutical Raw Material Testing
Service

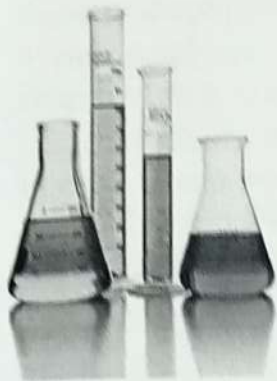
OTHER SERVICES :



Micro Biology Test Services



Pharmaceutical Validation
Services



Hplc

Pharmaceutical Formulation

Development Services

Pharmaceutical Raw Material Testing Service

Pace Analytical Life Sciences (Pls) Provides Raw Material Testing Services To The Pharmaceutical, Biopharmaceutical And Medical Device Industries. We Offer Excipient Testing To Support **Usp/Nf** (United States Pharmacopoeia/National Formulary), **Ep** (European Pharmacopoeia), **Bp** (British Pharmacopoeia), **Jp** (Japanese Pharmacopoeia), **Chp** (Chinese Pharmacopoeia), **Fcc** (Food Chemical Codex) And **Acs** (American Chemical Society, Reagent Standards) Monograph Testing Requirements. We Also Can Test Following Client-Supplied Or Vendor Supplied Methodology. Our Raw Material Testing Supports Formulation Development Within Research And Development, Excipients And Active Pharmaceutical Ingredients Used In Finished Product Manufacturing And Supports The Qualification Of Our Client's Raw Material Vendors.

Our Raw Material Testing Services Include:

- Complete Compendia Testing (**Usp, Ep, Bp, Jp, Chp, Fcc, Acs** Testing)
- **Usp** <467> Residual Solvent Testing
- **Hplc** (High Performance Liquid Chromatography), Gas Chromatography (**Gc**) And Ion Chromatography (**Ic**) Analyses

- Spectrophotometric Analyses (Fourier-Transform Infrared **Spectroscopy(Ftir)**, Ultraviolet-Visible Spectroscopy(**Uv/Vis, Uv-Vis**))
- Metals Analyses (Atomic Absorption Spectroscopy (Aa), Graphite Furnace .
- Heavy Metals Testing (**Icp-MS**)
- Ethylene Oxide And 1,4 – Dioxane Testing
- Plastics Container Testing Per **Usp <661>** And **<671>**
- Purified Water Testing
- Karl Fisher (**Kf**) Analyses
- Wet Chemistry Analyses

Metoprolol Tartrate



Dosing information

Metoprolol Tartrate Immediate Release Tablets:

Initial dose: 100 mg orally per day in single or divided doses

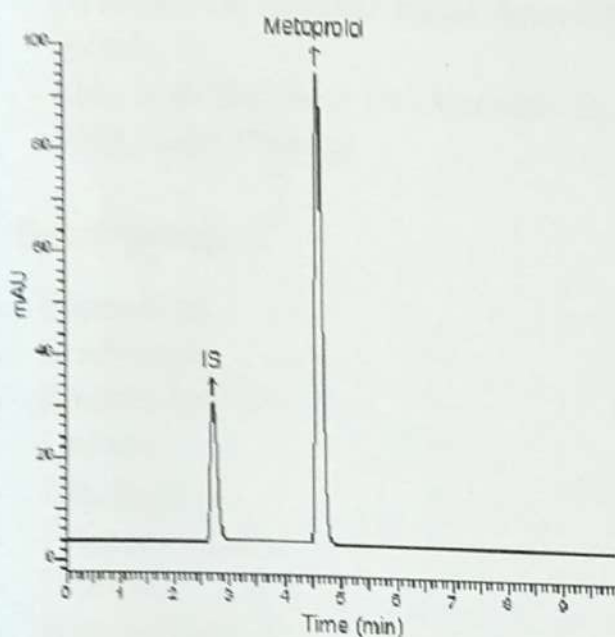
Maintenance dose: 100 to 450 mg orally per day.

Metoprolol Succinate Extended Release Tablets:

Initial dose: 25 to 100 mg orally once a day

Maintenance dose: 100 to 400 mg orally once a day.

High Performance Liquid Chromatography



HPLC Chromatogram Of Metoprolol (200 Ng Ml⁻¹)

ABSTRACT

A Rapid, Precise And Accurate Reverse Phase High Performance Liquid Chromatographic Method For The Estimation Of Metoprolol Tartrate In Tablets Was Developed And Validated . Separation Was Achieved On A Symmetry C₁₈ Rp Column (150 x 3.9mm) Using A Mobile Phase Consisting Of Phosphate Buffer Ph – 3.0 And Acetonitrile (80:20,v/v) Mixture ,At A Flow Rate Of 1.0 ml/min And Detection Was Carried Out At 275nm. The Retention Time Of The Drug Was Found To Be 5.45 min. The Method Was Found To Be Linear In The Concentration Range Of 100.52-603.11 µg/ml. The Lower Limit Of Quantification For Metoprolol Tartrate Was Found To Be 186 µg. The Proposed Method Can Be Used For The Routine Determination Of Metoprolol Tartrate In Its Tablet Dosage Forms.

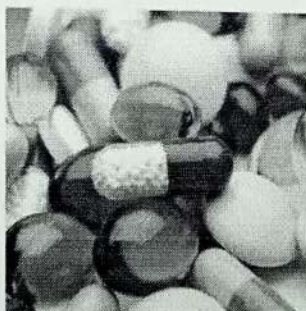
Advantages :

- Lowers Blood Pressure And May Be Used In The Treatment Of High Blood Pressure.
- Relieves Symptoms Of Angina In People With Coronary Heart Disease.

- Immediate-Release Metoprolol Tartrate Has Been Shown To Reduce The Risk Of Death Or Another Heart Attack When Given Immediately Following A Heart Attack.
- May Also Be Used To Decrease The Risk Of A First Heart Attack In People With Heart Disease.

Disadvantages :

- Depression
- Bradycardia
- Pruritus Of Skin
- Drowsy
- Dizziness
- Fatigue
- Diarrhea
- Hypotension
-



Conclusion :

From My Internship , I Was Able To Get A Better Understanding Of How The Hi Tech Laboratories Works And How Effective It Is.I Enjoyed Working With The Area And I Get Some Different Experience. However, I Still Have A Long Way To Go In Understanding . Overall , I Found The Industrial Internship Experience To Be Positive, And I'm Sure I Will Be Able To Use The Skills I Learned In My Career Later.