



Department : Chemistry		
Academic Year : 2023-24		
Sr. No.	Programme Code	Name of the Programme
01.	2136	B. Sc. Chemistry

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गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)

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Signature and Seal of the Head

GURU GHASIDAS VISHWAVIDYALA KONI, BILASPUR, (C.G.)



Department - Chemistry

**Subject :- Summer Internship Report
(Patholab)**

Submitted By :-

Aman Kaushik

B.Sc (Hons) Chemistry 4th semester

Roll No - 22103101

Enrollment No :- GGV/22/07001



S.S.PATHOLOGY LAB

Narmada Nagar Chowk, Ring Road No. 2, Bilaspur (CG)

Dr. S.S.Thakur

MBBS, DCP

Regd. No. 3981/2012

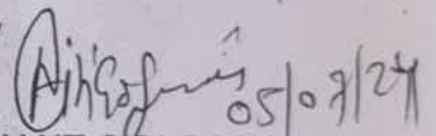
Mob : 8349490550, 9300650602

खुलने का समय : सोमवार से शनिवार - सुबह 8 बजे से रात 8 बजे तक, रविवार - सुबह 8 बजे से दोपहर 3 बजे तक

INTERNSHIP CERTIFICATE

THIS IS TO CERTIFY THAT MR. AMAN KAUSHIK STUDENT OF BSc HONS. (CHEMISTRY) IV SEMESTER FROM G.G.U. BILASPUR (C.G.) HE WAS COMPLETED 56 HOURS INTERNSHIP IN OUR PATHOLAB SINCE 18-05-2024 TO 02-07-2024. HIS PERFORMANCE WAS GOOD.

WE WISH HIS BRIGHT FUTURE.


NISHANT GIRI GOSWAMI

PROPRIETOR

S.S. PATHOLAB

Fully Automated Computerised Lab

Home Collection Facility Available

- Hematology ● Biochemistry ● Hormones ● Clinical Pathology ● Microbiology
- Cytopathology ● Histopathology ● Infeopathology ● Infertility Diagnostics

Note : Pathological test have technical limitations. For any disparity repeated examination are required. No legal liability is accepted.
Clinical correlation is also required. Subject to Bilaspur Jurisdiction.

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1. Heamatology (Study of Blood its components and disorders) - Page No - 01 to 07 .

2 . Clinical Pathology (involves laboratory analysis of bodily fluids like urine , semen and stool) - Page No - 08 to 16 .

GURU GHASIDAS VISHWAVIDYALAYA
Central Institute of Mining and Fuel Research
BILASPUR (C.G.)

(ANALYSIS OF COAL QUALITY)

SUMMER INTERNSHIP REPORT

(15-05-2024 TO 20-05-2024)



SUBMITTED TO
DR.GKPATRA (HOD)
DEPARTMENT OF CHEMSITRY
GURU GHASIDAS VISHWAVIDYALAYA
KONI DIST-BILASPUR (C.G.)

GUIDED BY
DR. MANJULA
SARAFI CSIR-CIMFR
(BILASPUR)

SUBMITTED BY
ANJALI KHUNTE
GGV/22/07030
B.SC. 4TH SEMESTER
ROLL.NO. 22103106
GGV KONI BILASPUR (C.G.)

CONTENTS OF OUR PROJECT

- 1. INTRODUCTION OF COAL**
- 2. TYPES OF COAL**
- 3. PROPERTY OF COAL**
- 4. METHOD USED TO DETERMINE PROPERTY OF COAL**
- 5. STANDARD MOISTURE OR EQUILIBRATED MOISTURE ON 60% RH ON 40**
- 6. DETERMINATION OF GROSS CALORIFIC VALUE**
- 7. REPORTING OF RESULT**
- 8. OBSERVATION TABLE**
- 9. RESULT AND DISCUSSION**



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



विज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research
(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट भागलपुर-495001 (उ.प्र.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.O.)
(आई एस आर 0001 प्रमाणित संस्थान / ISO 9001 Certified Institution) : -13.09.2024

संदर्भ क्र. : सिमफर नि/एनिए/सं.1/2024/363
Ref. No. : CIMFR/ADM/.....

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidass Vasthavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 18th May to 30th June 2024 and learnt the analysis of Coal & Coko, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

- | | |
|------------------------------|--------------------------|
| 1. Miss. Ojasvi Kashyap | 16. Miss. Payal Jaiswal |
| 2. Miss. Anvasha Jaiswal | 17. Miss. Nageswari Sahu |
| 3. Miss. Bhawana Narmada | 18. Miss. Anjali Khunte |
| 4. Miss. B. Tushara | |
| 5. Miss. Diksha Dewangan | |
| 6. Mr. Prakhar Mishra | |
| 7. Mr. Rahul Kumar Rakesh | |
| 8. Miss. Jaya Kashyap | |
| 9. Miss. Sakshi Tiwari | |
| 10. Miss. Garima Yadav | |
| 11. Miss. Surbhi Shukla | |
| 12. Miss. Sneha Singh Rajput | |
| 13. Miss. Manisha Patel | |
| 14. Mr. Anjay Choubey | |
| 15. Mr. Shreyash Pandey | |

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

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Bilaspur : फ़ोन (07752) 271581-88, 271357, 411328 फ़ैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in

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Project Report On Coal

Analysis and Techniques

CSIR-CIMFR Bilaspur

{ Central Institute For Mining And Fuel RESEARCH }
(Summer Internship 2024)



Submitted By - Anjay Choubey



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

27 खोली चौक, पोस्ट बाक्स नं.-41, बिलासपुर-495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्बर वि/एडीएम/2024/363

Ref No. : CIMFRB/ADM/.....J

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Name of the participants: -

1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakesh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
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11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,

Scientist-In-Charge

CSIR-Central Institute of Mining and Fuel Research

Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

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वेबसाइट / Website : www.cimfr.nic.in

WHAT IS COAL ?

The process of coal formation begins with the accumulation of dead plant matter in wet lands, which breaks down into peat through peatification. Over time, layers of dirt and rock cover the peat, and the resulting pressure and heat transform the plant matter into coal.

Coal is a combustible mineral substance that can be black or dark brown in color and is made up of carbonized vegetation matter. It is mainly composed of carbon, hydrogen, oxygen, nitrogen, sulfur, moisture, and ash.

Coal undergoes several transformation sometimes during its formation process, starting as lignite, then becoming sub-bituminous coal, and finally bituminous coal. The highest quality coal is anthracite coal. Overtime as the coal transforms, it becomes denser and loses water and other compounds.

Coal is classified into different types based on its carbon content, calorific value, and the presence of impurities. The primary types of coal found in India are:

1. **Peat** :It's the precursor of coal. It's the soft organic material partly decayed plant and mineral material. It develops under high pressure and undergoes physical and chemical changes .This process is called coalification
2. **Anthracite**: Has highest carbon content (80-95%) and calorific value with low volatile matter, and moisture.
3. **Bituminous**: Has moderate to high carbon content (45-86%) and significant calorific value, used widely for electricity generation and industrial processes.
4. **Sub-bituminous**:Has lower carbon content than bituminous coal with higher moisture content and moderate calorific value.
5. **Lignite**:Has lowest carbon content with lower calorific value and highest moisture content



GURU GHASIDAS VISHWAVIDYALAYA

A CENTRAL UNIVERSITY

BILASPUR



DEPARTMENT OF CHEMISTRY

INTERNSHIP REPORT

Internship on Quality Assessment of coal

**At CSIR – Central Institute of Mining and Fuel
Research, Bilaspur**

SUBMITTED BY

ANVESHJA JAISWAL

ROLL NO - 22103105

BSC CHEMISTRY HONS, 4TH SEM.



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
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(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्फर बि/एडीएम/2024/363
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Scientist-In-Charge

CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

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वेबसाइट / Website : www.cimfr.nic.in

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- 2.1 Equilibrated Moisture at 60% RH and 40 C
- 2.2 Proximate Analysis
- 2.3 Determination of Gross Calorific Value

3.STANDARD OPERATING PROCEDURE

4.OBSERVATION

5.RESULT AND DISCUSSION

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED

(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



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A Mini Ratna Company



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

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CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

ARYA TIWARI

GGV/22/07007

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(कोयल इण्डिया लिमिटेड की अधुनी कम्पनी / भारत सरकार का एक लोक उद्योग)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223


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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/01

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **ARYA TIWARI** Enrollment No.- GGV/22/07007 has successfully completed the internship training at CMPDIL Environment Laboratory, R1-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD
Environment Laboratory
Bilaspur, CMPDIL


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई, के.सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साईट/Website: www.cmpdi.co.in

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Ashutosh Sahu

GGV/22/07008

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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(कोल इण्डिया लिमिटेड की अंतर्गामी कंपनी / भारत सरकार का एक लोक उद्योग)
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CORPORATE IDENTITY NUMBER - U14292JH1975G01001223

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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/10

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **ASHUTOSH SAHU** Enrollment No.- **GGV/22/07008** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., क्षेत्र सं.-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

C. J. K. V.
Lab In-charge
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प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., क्षेत्र सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साइट/Website: www.cmpdi.co.in

About the samples –

There are four types of samples, which are as follows

- A) Air
- B) Water
- C) Solid
- D) Noise

Air Samples

- Why air samples are taken ?

To check air is pollutes or not by checking following parametrs such as

- 1) Particulate matter (PM 2.5 or PM 10)
- 2) SO_x
- 3) NO_x
- 4) NH₃
- 5) O₃
- 6) Co
- 7) Heavy metals

- How a sample of air is collected?

Capturing the contaminant from a known volume of air, measuring the amount of contamination captured and expressing it as a concentration.

The air is passed through filter medium.



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CMPDI INTERNSHIP REPORT

Session: 2023-24

NAME - **AYUSH NISHAD**

YEAR - **2ND YEAR (4TH SEMESTER)**

ROLL NO. - **22103109**

ENROLLMENT NO. - **GGV/22/07009**

NAME OF INSTITUTE - **GURU GHASIDAS**

VISHWAVIDYALAYA BILASPUR

PHONE NO. - **9406125107**



सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोन्दवाना प्लेस, कान्के रोड, राँची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/19

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **AYUSH NISHAD** Enrollment No.- **GGV/22/07009** has successfully completed the internship training at CMPDIL Environment Laboratory, R1-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours). Vide letter No.- **CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392**, Dated 21-05-2024.

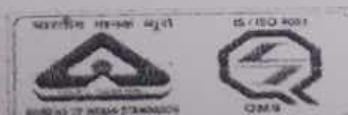
HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
स्वी. एन. सी. टी. आई., से. सं.-5/C.M.P.D.I., RI-
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

Lab In-charge

Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई, क्षे.सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air

2. Water

3. Soil

4. Noise

Explanations Of The Following Sample Parameters

1. **Air Parameters** — SO_x , NO_x , PM_{10} , $\text{PM}_{2.5}$, PM_{100} , Ozone, Ammonia, Mercury.
2. **Water Parameters** —
 1. **Alkalinity Of Water** – Alkalinity of the sample Can be analysed Within 24Hrs. of getting the Sample(OH^- , CO_3^{2-} , HCO_3^-).

PROCEDURE FOR ALKALINITY TEST

Take 20 ml sample in a conical flask and add mix indicator to it . Fill the burette with 0.02N H_2SO_4 On titrating it colour changes from Green to Pink And total alkalinity can we known.

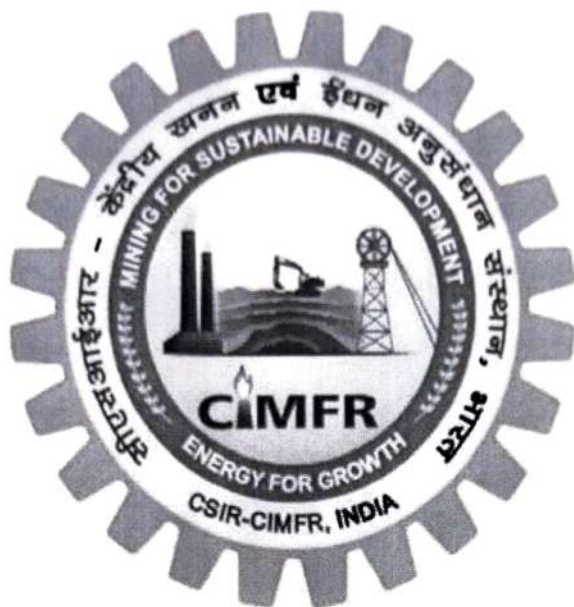
2. **Total Hardness** — Total Hardness Should be checked within 6 months of getting the sample.Total hardness can be checked with the complexometric Titration.

(Date- 25/05/24)

PROCEDURE TO CHECK TOTAL HARDNESS

Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

PROJECT REPORT ON QUALITY ASSESMENT OF COAL



**CSIR-Central Institute Of Mining and Fuel
Research, Bilaspur**

(Summer Internship 2024)

SUBMITTED BY:

Bhawana Narmada

(Student of Guru Ghasidas Vishwavidyalaya

BSc Chemistry Hons, 4th Semester)



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बाक्स नं-41, बिलासपुर-495001 (छ.ग.) 27 Kholi Chowk, P.O.No. 41, Bilaspur 495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान ISO 9001 Certified Institute) - 13 09 2024

संदर्भ क्र. : सिम्फर बि/एडीएम/13/09/2024/363
Ref. No. : CIMFRB/ADM/.....

TO WHOMSOEVER IT MAY CONCERN

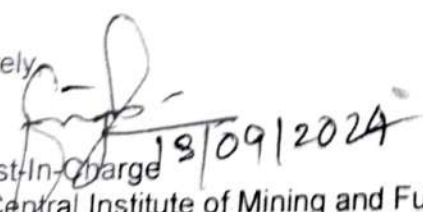
This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 16th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakesh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
10. Miss. Garima Yadav
11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

(07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrib@yahoo.co.in

वेबसाइट / Website : www.cimfr.nic.in

TABLE OF CONTENT

1.INTRODUCTION

2.METHODS OF COAL ANALYSIS

- 2.1 Equilibrated Moisture at 60% RH and 40 C
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- 2.3 Determination of Gross Calorific Value

3.STANDARD OPERATING PROCEDURE

4.OBSERVATION

5.RESULT AND DISCUSSION

PROJECT REPORT ON QUALITY ASSESSMENT OF COAL



**CSIR-Central Institute Of Mining and Fuel
Research, Bilaspur**

(Summer Internship 2024)

SUBMITTED BY:

Borangi Tushara

Roll No.22103112

GGV/22/07012

(Students of Guru Ghasidas Vishwavidyalaya

BSc Chemistry Hons, 4th Semester



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

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(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्फर बि/एडीएच/2024/363

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11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,

Scientist-In-Charge

CSIR-Central Institute of Mining and Fuel Research

Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrib@yahoo.co.in
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DEPARTMENT OF BIOCHEMISTRY
CHHATTISGARH INSTITUTE OF MEDICAL SCIENCES,
BILASPUR (CG)



सर्वे संतु निरामयः

WORK BOOK
INTERNSHIP POSTING (SUMMER)
BIOCHEMISTRY

NAME: Chand Bandhe

CLASS: B.Sc. (Hons), Chemistry 4th sem

ROLL NO: 22103113

EN. NO.: GGV/22/07013

DURATION: FROM 27/05/2024 TO 10/06/2024

DEPARTMENT OF BIOCHEMISTRY
CIMS, BILASPUR (CG)



जैव-रसायन विभाग
छत्तीसगढ़ आयुर्विज्ञान संस्थान (सिम्स), बिलासपुर -495001
Fax (O) - 07752-224200, Phone (I) - 07752-230030, 222302
Website - www.cimsbilaspur.ac.in, email - deancims@gmail.com

क्र. 382 / जैवरसायन / सिम्स / 24

बिलासपुर दिनांक 10/06/2024

CERTIFICATE

This is to certify that Ms. Chand Bandhe, IVth semester student of B.Sc. (Hon.) Chemistry, Guru Ghasidas Vishwavidyalaya (C.G.) has Successfully completed her summer internship at the Clinical Biochemistry laboratory, CIMS, Bilaspur from 27/05/2024 to 10/06/2024.

During this period she has undergone extensive training on the application of the Beer-Lambert Law in clinical Biochemistry.

We commend her dedication and hard work throughout the internship.
We wish her all the best for future endeavors.

Head

Deptt. of Biochemistry
CIMS, Bilaspur (C.G.)

HEAD

Department of Biochemistry
CIMS, Bilaspur (C.G.)

INDEX

S. NO.	TITLE	PAGE NO.
1.	Rules and Regulations for Completion of Internship in Biochemistry Subject	07
2.	Introduction	09
3.	General Information about Biochemistry Laboratory & Type of investigation done in dept. of biochemistry.	11
4.	<p>Week 1: Introduction to Photometric Techniques</p> <ul style="list-style-type: none"> • Overview of photometric techniques used in biomedical engineering and clinical settings. • Introduction to principles of photometric measurement. • Familiarization with common photometric instruments and equipment available in departmental laboratory. • Understanding the importance of accurate and reliable photometric measurements in healthcare 	13-32
5.	<p>Week 2: Merits and Demerits of Photometric Techniques</p> <ul style="list-style-type: none"> • In-depth study of the advantages and limitations of photometric techniques • Discussing the demerits, including interference factors and limitations in certain sample types 	33-42



GURU GHASIDAS VISHWAVIDYALAYA

Koni, Bilaspur Chattisgarh



Department of chemistry

Internship report on

12 parameters of soil analysis

Submitted by

Chitranshi Mandavi

Roll no : 22103114

Enr: GGV/22/07014


4th Semester

Summer Internship

Submitted to

Dr. G.K Patra

H.O.D Department Of Chemistry






OFFICE OF ASSISTANT SOIL TESTING OFFICER DISTT-DHAMTARI (C.G.)

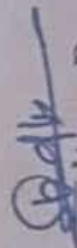



CERTIFICATE OF INTERNSHIP

This is to certify that Miss Chitranshi Mandavi student of B.Sc. IV Sem. Chemistry Honours of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.), has successfully completed a Summer Internship Program of 30 Hours on "Soil Testing" during 16th to 24th May 2024.

During the Period of her Internship Program with us, she had been exposed to different Processes and was found diligent, hardworking and inquisitive. We wish her every success in her life and career.


Lab Assistant
Distt-Dhamtari (C.G.)


Senior Agriculture Development
Officer, Distt-Dhamtari (C.G.)


Assistant Soil Testing officer
Distt- Dhamtari (C.G.)

EXECUTIVE SUMMARY

As a part of my B.sc. Course , I had a privilege to join " soil analysis centre , dhamtari { C.G } to do my internship course . I have completed my internship course of 30 hours from 16th may 2024 to 24th may 2024 . under soil analysis centre whose training centre is located at rudri , dhamtari , chhattisgarh .

During my internship period I have gained valuable knowledge and experience In the field of agriculture .

Therefore on the basis of my learning I have completed my internship report on the topic : " soil analysis " under the guidance of Mr. PRABHAT KUMAR KUMBHAKAR and MR. OM SAHU sir { chemist }.

The aim of internship was to put the theoretical knowledge of soil science into practical use and it also imparted the whole processing and work flow right for better soil fertility .

The first week of internship aimed at providing detailed information about the soil and instrument introduction. also aimed to provide theoretical concept about soil and crop production of different areas . the lab assistant provide us 12 parameters to measure the fertility and productivity of soil During second week of internship training , we learnt about the nutrients present in the soil and its importance in the fertility of soil including the use of double beam photospectrometer .

To conclude the summary, I gained and experience and practical knowledge in the field of soil test . it indeed was a great learning process that will help me with not just for the course but for due lifetime .

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED

(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas

Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur

Submitted By :-

Dankeshwar

GGV/22/07015

B.Sc. 4th Semester

GGV Koni, Bilaspur



cmpdi

A Mini Ratna Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/0218

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **DANKESHWAR** Enrollment No.- **GGV/22/07015** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD
Environment Laboratory
Bilaspur, CMPDIL

पर्यावरण प्रयोगशाला (पर्यावरण) / H.O.D. (Envt.)
सी.एम.पी.डी.आई. को रोड-5/C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

C. K. V.
Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई. को.सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साइट/Website: www.cmpdi.co.in

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air

2. Water

3. Soil

4. Noise

Explanations Of The Following Sample Parameters

1. **Air Parameters** — SO_x , NO_x , PM10, PM2.5, PM100, Ozone, Ammonia, Mercury.
2. **Water Parameters** —
 1. **Alkalinity Of Water** – Alkalinity of the sample Can be analysed Within 24Hrs. of getting the Sample(OH^- , CO_3^{2-} , HCO_3^-).

PROCEDURE FOR ALKALINITY TEST

Take 20 ml sample in a conical flask and add mix indicator to it . Fill the burette with 0.02N H_2SO_4 On titrating it colour changes from Green to Pink And total alkalinity can we known.

2. **Total Hardness** — Total Hardness Should be checked within 6 months of getting the sample.Total hardness can be checked with the complexometric Titration.

(Date- 25/05/24)

PROCEDURE TO CHECK TOTAL HARDNESS

Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

Guru Ghasidas Vishwavidyalaya

(A Central University)

INTERNSHIP REPORT

Submitted for the Summer Internship-2023-24



By

Devendra Kashyap

B.Sc. (Hons.) Chemistry, Semester IV

Enrollment No.: GGV/22/07016

Submitted to

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

(A Central University), Bilaspur, C.G.

June-2024

DATE:- 26/06/2024

INTERNSHIP CERTIFICATE

THIS IS TO CERTIFY THAT MR. DEVENDRA KASHYAP STUDENT OF B.Sc(CHEMISTRY) IV SEMESTER FROM GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.). HE WAS COMPLETED 56 HOURS INTERNSHIP (TRAINING) IN PATHOLAB FROM PRATHAM HOSPITAL, BILASPUR (C.G.) SINCE 19/06/2024 TO 25/06/2024. HIS PERFORMANCE WAS GOOD.

WE WISH HIS BRIGHT FUTURE.

26/06/24
Mrs. Priyanka Mishra
HR Manager

Dr. Rajnish Pandey
CEO



AN ISO 9001: 2015 CERTIFIED MULTISPECIALITY HOSPITAL

Facilities For : ESIC • INDIAN RAILWAY • CSPOCL • AAYUSHMAN BHARAT YOJNA • WAREHOUSE CORPORATION OF INDIA • ICICI LOMBARD • IFFCO TOKIO • CHOLA MS • MEDI ASSIST TPA • AMOUNT HEALTH INSURANCE TPA • RELIANCE GENERAL INSURANCE • MAX BUPA HEALTH INSURANCE • NUVOCO VISTAS CORP. LTD. • BAJAJ ALLIANZ GENERAL INSURANCE • SAFEWAY INSURANCE • FHIPL • LIFE INSURANCE • CARE HEALTH INSURANCE • MD INDIA HEALTH INSURANCE • NATIONAL INSURANCE CO. LTD. • HDFC ERGO GENERAL INSURANCE • STAR HEALTH INSURANCE • MANIPAL SIGMA HEALTH INSURANCE

दवाईयों से संबंधित निराकरण हेतु : 74704-83487, एम्बुलेंस सुविधा हेतु : 86020-50203

RED BLOOD CELL MORPHOLOGY

INTRODUCTION –

Morphological changes of red cells can be detected in most thalassaemia carriers. An examination of a stained peripheral blood smear may be helpful in the evaluation of cases.

Reagents used –

- 1) May-Grunwald's stain powder (0.3 g)
- 2) Methyl alcohol (100 ml)
- 3) The staining solution is made up by swirling to mix, then warming in a 56°C water bath for 15 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 4) Giemsa's stain powder (1 g)
- 5) Glycerol (66 ml)
- 6) Methyl alcohol (66 ml)
- 7) Staining solution is made up by adding the stain to the glycerol, then warming in a 56°C water bath for 90-120 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 8) Phosphate buffer 0.066 M pH 6.8 (Sorensen's):
- 9) KH_2PO_4 : 9.1 g
- 10) Na_2HPO_4 : 9.5 g (or $\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$: 14.2 g) Dissolve in 1 litre distilled H_2O to make 0.066 M buffer of pH 6.8 .

Add 50 ml of phosphate buffer 0.066 M pH 6.8 to each litre of water used to dilute stains and wash films.

PROCEDURE –

Preparation of smears -

EDTA anticoagulated venous whole blood or capillary blood is used to prepare a blood film. After drying at room temperature the blood film can be stained with May-Grumwald (or Wright stain).



GURU GHASIDAS VISHWAVIDYALAYA KONI BILASPUR [C.G.]

SESSION ; 2024-25

[A Central University Established By The Central University Act,2009 NO.25 OF 2009]

INTERNSHIP REPORT ON

SOIL TESTING



UNDER THE GUIDENCES OF

Mr. R.k. kashyap sir

Assistance soil analysis officer soil analysis
Centre Dhamtari (c.g)

SUBMITTED BY

Devshree Netam

Roll no. 22103117

Enrollment no GGV/22/07017

B.Sc.(chemistry) 4th semester

SUBMITTED TO

Dr. Goutam Kumar Patra

Professor

Department of chemistry

Guru Ghasidas Vishwavidyalaya Bilaspur (C.G) 495009



OFFICE OF ASSISTANT SOIL TESTING OFFICER DISTT-DHAMTARI (C.G.)



CERTIFICATE OF INTERNSHIP

*This is to certify that Miss **Devshree Netam** , student of B.Sc. IV Sem. Chemistry Honours of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.), has successfully completed a Summer Internship Program of 30 Hours on "Soil Testing" during 16th to 24th May 2024.*

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Distt-Dhamtari (C.G.)

**Senior Agriculture Development
Officer, Distt-Dhamtari (C.G.)**

Assistant Soil Testing officer
Distt- Dhamtari (C.G.)

मृदा स्वास्थ्य कार्ड

केंद्र का नाम Soil Testing Lab Dhamtari

पता : Dhamtari Tahsil, Dhamtari, Chhattisgarh,
493776, India

टेस्ट आईडी: SHC2024-48-114914-flkz

परीक्षण दिनांक : 7 मार्च 2024

Government of India
Ministry of Agriculture and Farmers Welfare
Department of Agriculture and Farmers Welfare

नमूना जानकारी

सर्वेक्षण संख्या : 1732/3

Plot Address : Chhuhi, Dhamtari, Chhattisgarh

नमूना एकत्रीकरण दिनांक : 17 फरवरी 2024

भौगोलिक स्थिति (जीपीएस) :

81.7020323, 20.651146

लाभार्थी का विवरण

नाम : Parsadi Fagwa

टेलीफोन नंबर : 91*****0595

पता :

Sihyan Bahara, Chhuhi, Nagari, Dhamtari,
Chhattisgarh

चयनित फसल

धान

प्लॉट का आकार

0.320 हेक्टेयर

मिट्टी के प्रकार : रेत मरी मिट्टी

फील्ड छवि



मिट्टी के नमूने का विवरण

उपलब्ध नाइट्रोजन (N)

289.00 kg/ha

श्रेणी : 280 - 560



उपलब्ध फास्फोरस (P)

22.40

kg/ha

श्रेणी : 10 - 25



उपलब्ध पोटेशियम (K)

197.00 kg/ha

श्रेणी : 120 - 280



पीएच (pH)

7.11

श्रेणी : 5.5 - 8.5



इलेक्ट्रिकल कंडक्टिविटी

(EC) 0.03dS/m

श्रेणी : < 1



कार्बनिक कार्बन (OC)

0.17

w% श्रेणी : 0.50 - 0.75



उपलब्ध सल्फर (S)

11.00

ppm

श्रेणी : > 10



उपलब्ध जिंक (Zn)

0.29 ppm

श्रेणी : > 0.6



उपलब्ध बोरॉन (B)

0.35 ppm

श्रेणी : > 0.5



उपलब्ध आयरन (Fe)

27.20

ppm

श्रेणी : > 4.5



उपलब्ध मैंगनीज (Mn)

19.55

ppm

श्रेणी : > 2



उपलब्ध कॉपर (Cu)

1.14 ppm

श्रेणी : > 0.2



मापा हुआ पैमाना

मध्यम, उत्तम, प्रयोग, शारीर, मोटा
अम्लीय, उच्च (OC OM)

मध्यम (OC OM)



नीचा, अपूर्ण

उच्च, अम्लीय, SALINE, अत्यधिक
शारीर, नीचा (OC OM)

उपलब्ध नहीं है



संस्तुति

फसल

मृदा अनुकूलक/ संशोधन

उर्वरक संयोजन-1

उर्वरक संयोजन-2

धान

फील्ड याई खाद / कम्पोस्ट / खाद (टन
प्रति हेक्टेयर) - 8.3डीएपी - 109 किलो प्रति हेक्टेयर
एमओपी - 50 किलो प्रति हेक्टेयर
यूरिया - 131 किलो प्रति हेक्टेयरएमओपी - 50 किलो प्रति हेक्टेयर
यूरिया - 174 किलो प्रति हेक्टेयर

सूक्ष्म पोषक तत्व उर्वरक

जिंक सल्फेट - 15 किलो प्रति हेक्टेयर, बोरिक्स - 5 किलो प्रति हेक्टेयर,

अस्वीकरण : हमारी रिपोर्ट को पूरी तरह से या आंशिक रूप से पुनः प्रस्तुत नहीं किया जाना है और कानून की अख्तियारता में सबूत के रूप में इस्तेमाल नहीं किया जा सकता है और हमारे पूर्ण लिखित अनुमोदन के बिना किसी भी विज्ञापन जीडिआ में इसका उपयोग नहीं किया जाना चाहिए इस रिपोर्ट में दर्शाई गई उर्वरक सिफारिश चयनित फसल के पूरे मौसम के लिए है।

Project Report On Coal

Analysis and Techniques

CSIR-CIMFR Bilaspur

{Central Institute For Mining And Fuel RESEARCH}

(Summer Internship 2024)



Submitted By- DIKSHA DEWANGAN

Enrollment no. - GGV/22/07018

Bsc. (Chemistry) 4th semester

GURU GHASIDAS VISHWAVIDHYALAYA

Bilaspur

Submitted to-

Prof. G.K. Patra (HOD)

Department of Chemistry (GGV)



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research
(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बाक्स नं.-41, बिलासपुर-495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)
(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute)

Date: -13.09.2024

संदर्भ क्र. : सिम्फार वि/एडीएच/2024/363
Ref. No. : CIMFRB/ADM/...../

TO WHOMSOEVER IT MAY CONCERN

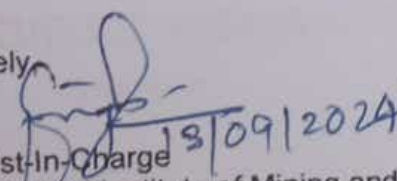
This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 16th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakesh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
10. Miss. Garima Yadav
11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

WHAT IS COAL ?

The process of coal formation begins with the accumulation of dead plant matter in wet lands, which breaks down into peat through peatification. Over time, layers of dirt and rock cover the peat, and the resulting pressure and heat transform the plant matter into coal.

Coal is a combustible mineral substance that can be black or dark brown in color and is made up of carbonized vegetation matter. It is mainly composed of carbon, hydrogen, oxygen, nitrogen, sulfur, moisture, and ash.

Coal undergoes several transformation sometimes during its formation process, starting as lignite, then becoming sub-bituminous coal, and finally bituminous coal. The highest quality coal is anthracite coal. Overtime as the coal transforms, it becomes denser and loses water and other compounds.

Coal is classified into different types based on its carbon content, calorific value, and the presence of impurities. The primary types of coal found in India are:

1. **Peat** :It's the precursor of coal. It's the soft organic material partly decayed plant and mineral material. It develops under high pressure and undergoes physical and chemical changes .This process is called coalification
2. **Anthracite**: Has highest carbon content (80-95%) and calorific value with low volatile matter, and moisture.
3. **Bituminous**: Has moderate to high carbon content (45-86%) and significant calorific value, used widely for electricity generation and industrial processes.
4. **Sub-bituminous**:Has lower carbon content than bituminous coal with higher moisture content and moderate calorific value.
5. **Lignite**:Has lowest carbon content with lower calorific value and highest moisture content



CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

DURGESH Patel

GGV/22/07020
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीट्यूट लिमिटेड
(कोयल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उद्यम)
गोन्दावना प्लेस, कान्के रोड, राँची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/0211

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **DURGESH PATEL** Enrollment No.- **GGV/22/07020** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

Environment Laboratory
Bilaspur, CMPDIL

प्रमाणित (पर्या.) / H.O.D. (Envt.)
सी.एन.डी.आई., से. सं.-5/C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एन.पी.डी.आई., से. सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI *Central Mine Planning & Design Institute Limited*

- **Headquatar** - Gondwana Place, Kanke Road, Ranchi (Jharkhand), INDIA

- **Establish- 1 Nov 1975** Celebrated as Coal India Formation Day

- **Regional Institutes**

I. Regional Institutes - I Asansol (WB), India

II. Regional Institutes - II Dhanbad, (Jharkhand), India

III. Regional Institutes - III Ranchi (Jharkhand), India

IV. Regional Institutes - IV Nagpur (Maharashtra), India

V. Regional Institutes - V Bilaspur (Chhattisgarh), India

VI. Regional Institutes - VI Singrauli (Madhya Pradesh), India

VII. Regional Institutes - VII Bhuneshwar (Odisha), india

Type of sample:-

- **Air sample**

SO_x, NO_x, NH₃, O₃, CO, Air Heavy Metals

- **Water sample**

Drinking Water, Ground Water, Influent Water (Domestic Uses Water), Surface Water

- **Noise Sample**

Direct Reading

- **Solid Sample --- Liquid Form**

The machine use for *air* is **RDS (Respirable Dust Sampler Machine)**

HEAVY METALS

Air sampling by Glass Fiber Filter Paper for metals.

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



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Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Esha Patel

GGV/22/07021
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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(कोल इण्डिया लिमिटेड की अफिलीयत वाली / भारत सरकार का एक लोक उद्योग)
गोन्दवाना प्लेस, कान्के रोड, राँची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

कमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/0109

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **ESHA PATEL** Enrollment No.- **GGV/22/07021** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD

Environment Laboratory
Bilaspur, CMPDIL

बिभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)

सी.एम.पी.डी.आई., क्षेत्र-5/C.M.P.D.I., RI-5

बिलासपुर (छ.ग.) / Bilaspur (C.G.)

C. K. Vd.

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)

प्रयोग शाला एवं परीक्षण केन्द्र

सी.एम.पी.डी.आई., क्षेत्र-5

बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI Central Mine Planning & Design Institute Limited

- **Headquatar** - Gondwana Place, Kanke Road, Ranchi (Jharkhand), INDIA
- **Establish- 1 Nov 1975** Celebrated as **Coal India Formation Day**
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 - I. Regional Institutes - I** Asansol (WB), India
 - II. Regional Institutes - II** Dhanbad, (Jharkhand), India
 - III. Regional Institutes - III** Ranchi (Jharkhand), India
 - IV. Regional Institutes - IV** Nagpur (Maharashtra), India
 - V. Regional Institutes - V** Bilaspur (Chhattisgarh), India
 - VI. Regional Institutes - VI** Singrauli (Madhya Pradesh), India
 - VII. Regional Institutes - VII** Bhuneshwar (Odisha), india

Type of sample:-

- **Air sample**

SO_x, NO_x, NH₃, O₃, CO, Air Heavy Metals

- **Water sample**

Drinking Water, Ground Water, Influent Water (Domestic Uses Water), Surface Water

- **Noise Sample**

Direct Reading

- **Solid Sample --- Liquid Form**

The machine use for *air* is **RDS (Respirable Dust Sampler Machine)**

HEAVY METALS

Air sampling by Glass Fiber Filter Paper for metals.

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



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Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas

Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur

(CG)

Submitted By :-

Esipta Dewangan

GGV/22/07022

B.Sc. 4th Semester

GGV Koni, Bilaspur

(C.G)



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A Mini Ratna Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुबंधी कंपनी / भारत सरकार का एक लोक उपक्रम)
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/14

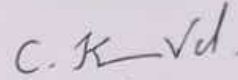
दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **ESIPTA DEWANGAN** Enrollment No.- **GGV/22/07022** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD

Environment Laboratory
Bilaspur, CMPDIL

प्रमुख (पर्या.) / H.O.D. (Env.)
रि. सं. 5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


C. K. Verma

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई, क्षे.सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI (Central Mine Planning & Design Institute Limited):-

CMPDI is routinely dealing with multi-dimensional environment complexities of coal and mineral sector to promote environmentally benign mining design and mitigation practices in India and abroad. The services include EIA/EMPs for mining and coal beneficiation projects, planning and design of Pollution Control Facilities (Industrial and Domestic Effluent treatment Plants), Mine Closure Plan, Slope Stability analysis for dumps and high walls and regular environment monitoring (air, water and noise level). CMPDI also takes up environment baseline data required for EIA/EMP studies. The environment laboratory at CMPDI is also recognized by Central Pollution Control Board and is accredited with ISO 9001 certification.

Type of Sample-

1. **Air.** - Particular matter (PM₁₀, PM_{2.5}, PM₁₀₀), SO_x, NO_x, ammonia ozone, CO, heavy metals etc.

2. **Water-** Drinking water, surface water, effluent water, ground water are the types of water sample.

Residual free chlorine, taste, odor, fecal coliform, alkalinity, turbidity, color, nitrate, sulfate, chloride, hardness test etc. are done depend on water sample.

3. Noise

4. Soil

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH

SUMMER INTERNSHIP REPORT



SUBMITTED TO:

Dr. SHRIPAL SINGH
QUALITY MANAGER
CSIR-CIMFR

SUBMITTED TO:

Dr. G.K PATRA (HOD)
DEPARTMENT OF CHEMISTRTY

GUIDED BY:

Dr. MANJULA SHARAFF
TECHNICAL MANAGER
CSIR-CIMFR

SUBMITTED BY:

GARIMA YADAV
BSC. HONS (4TH) SEMESTER
GGV/22/07047



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

27 खोली चौक, पोस्ट बाक्स नं.-41, बिलासपुर-495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्फार रि / एडीएन / 363 / 2024
Ref. No. : CIMFR/ADM/.....

TO WHOMSOEVER IT MAY CONCERN

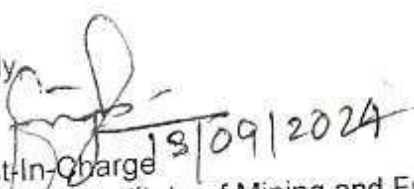
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Name of the participants: -

1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakesh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
10. Miss. Garima Yadav
11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450. ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in

वेबसाइट / Website : www.cimfr.nic.in



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2.	EXPERIMENTAL INVESTIGATION 2.1 PROXIMATE ANALYSIS 2.2 EQUILIBRATED MOISTURE 2.3 GROSS CALORIFIC VALUE
3.	OBSERVATION
4.	RESULT
5.	DISCUSSION AND CONCLUSION

URANIUM CORPORATION OF INDIA LIMITED

DEPARTMENT OF ATOMIC ENERGY

SUMMER INTERNSHIP REPORT

(03/06/2024 – 21/06/2024)



Submitted to :-

Shri D. Prajapati

CRD Lab

UCIL Jadugoda

Jamshedpur Jharkhand

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri S. Sahoo

CRD Lab

UCIL Jadugoda

Jamshedpur Jharkhand

Submitted By :-

Girdhar Kumar

GGV/22/07023

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



URANIUM CORPORATION OF INDIA LTD.

(A Government of India Enterprise)

Department of Atomic Energy

यूरेनियम कॉरपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का संस्थान)

परमाणु ऊर्जा विभाग



No.UCIL/MTC/24/128

CIN : U12000 JH 1967 G01 00011006

Date: 28.06.2024

TO WHOMSOEVER IT MAY CONCERN

Mr. Girdhar Kumar a student of B.Sc Chemistry (IV Semester) of Guru Ghasidas Vishwavidyalaya (A Central University), Koni Bilaspur has undergone Vocational Training in UCIL Jaduguda Mill (CR&D) Department from **03.06.2024 to 21.06.2024**.

During this period of stay as a vocational trainee, he was found to be sincere and hard working.

Prabhas Ranjan

DGM/HOD (M.S. Estate)

I/C- Management Training Centre

Narwapahar

Prabhas Ranjan

DGM (M.S.)

I/C Management Training Centre

CONTENTS

1. Introduction

2. Flow chart of ore processing

3. Crushing and Grinding

4. Instruments :- 1. Flourimeter

2. UV/Vis spectrophotometer

3. pH meter

5. Lab analysis

1. Acid analysis

2. Analysis of Uranium percentage in Mine Ore

3. Lime analysis

4. Colour derivative preparation (sample 1 and sample 2)

5. Volhard's method

6. Pyrolusite

7. Specific Gravity

8. Bulk density

9. Radiometry

10. Water analysis

a. TSS

b. TDS

c. Sulphate ion

d. Iron

e. Manganese

f. Calcium

g. P_2O_5

h. Chloride

i. Residual Chlorine

j. BOD

k. COD

l. Hardness

m. Alkanity

Internship Report On

"SOIL ANALYSIS"

In The Office Of Assistant Soil Testing Officer
Dhamtari, (C.G.)



Under the guidance of- MR. PRABHAT KUMAR KUMBHAKAR sir and
MR. OM SAHU sir.

• SUBMITTED TO :-

Dr. G.K. Patra (HOD, Chemistry)
Guru Ghasidas Vishwavidyalaya,
Bilaspur ,Chhattisgarh.

हिमांशी

• SUBMITTED BY :-

Himanshi sahu
B.Sc.chemistry(Hons.)

4th semester



**OFFICE OF ASSISTANT SOIL TESTING OFFICER
DISTT-DHANTARI (C.G.)**




CERTIFICATE OF INTERNSHIP

This is to certify that Miss Himanshi Sahu, student of B.Sc. IV Sem. Chemistry Honours of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.), has successfully completed a Summer Internship Program of 30 Hours on "Soil Testing" during 16th to 24th May 2024.

During the Period of her Internship Program with us, she had been exposed to different Processes and was found diligent, hardworking and inquisitive. We wish her every success in her life and career.


Lab Assistant
Distt-Dhamtari (C.G.)


**Senior Agriculture Development
Officer, Distt-Dhamtari (C.G.)**


Assistant Soil Testing officer
Distt- Dhamtari (C.G.)

EXECUTIVE SUMMARY

As a part of my B.sc. Course , I had a privilege to join " soil analysis centre , dhamtari { C.G }" to do my internship course . I have completeed my internship course of 30 hours from 16th may 2024 to 24th may 2024 . under soil analysis centre whose training centre is located at rudri , dhamtari , chhattisgarh .

During my internship period I have gained valuable knowledge and experience In the field of agriculture .

Therefore on the basis of my learning I have completed my internship report on the topic : "soil analysis" under the guidance of Mr. PRABHAT KUMAR KUMBHAKAR and MR. OM SAHU sir { chemist }.

The aim of internship was to put the theoretical knowledge of soil science into practical use and it also imparted the whole processing and work flow right for better soil fertility .

The first week of internship aimed at providing detailed information about the soil and instrument introduction. also aimed to provide theoretical concept about soil and crop production of different areas. The lab assistant provide us 12 parameters to measure the fertility and productivity of soil

ANALYSIS OF COAL QUALITY

A THESIS SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

INTERNSHIP

IN

MINING AND COAL RESEARCH

BY

SURBHI SHUKLA

GARIMA YADAV

SNEHA SINGH RAJPUT

JAYA KASHYAP



CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

27 खोली चौक, पोस्ट बागसा नं.-41, बिलासपुर-495001 (भ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.O.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institution): -13.09.2024

संदर्भ नं. : सिमफर नि/एडीएम/२३/१०९/२०२४/३६३
Ref. No. : CIMFRN/ADM/.....J

TO WHOMSOEVER IT MAY CONCERN

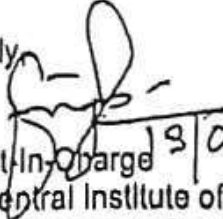
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Name of the participants: -

- | | |
|------------------------------|--------------------------|
| 1. Miss. Ojasvi Kashyap | 16. Miss. Payal Jaiswal |
| 2. Miss. Anvesha Jaiswal | 17. Miss. Nageswari Sahu |
| 3. Miss. Bhawana Narnada | 18. Miss. Anjali Khunte |
| 4. Miss. B. Tushara | |
| 5. Miss. Diksha Dewangan | |
| 6. Mr. Prakhar Mishra | |
| 7. Mr. Rahul Kumar Rakosh | |
| 8. Miss. Jaya Kashyap | |
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I wish all the success in their future endeavour.

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Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

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Internship Report

On

PATHOLOGY LAB

Department Of Chemistry

submitted in the partial fulfilment for the award of degree in

Bachelors in Chemistry

To

Guru Ghasidas Vishwavidyalaya, koni, Bilaspur,

Chhattisgarh



SUBMITTED TO

DR. G. K. Patra (HOD of chemistry)

GGV, Bilaspur Chhattisgarh

SUBMITTED BY

NAME – Khileshwari Dewangan

B.sc. 4th sem. Roll. No. (22103126)


**PRIMARY HEALTH CENTER ARJUNI, DONGARGAON,
RAJNANDGAON C.G.**

INTERNSHIP COMPLETION CERTIFICATE

This is certify that KHILESHWARI DEWANGAN Student of B.Sc. IV Semester Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur(C.G.) has Successfully Completed her internship of (Six credits) THIRTY HOURS on "Pathology" from 17.05.2024 to 31.05.2024 in Primary health center Arjuni.

Her performance in PHC Arjuni Dongargaon, during this period was Good.

Date :-


Incharge of Internship
मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
पिछा राजनादगाव (छ.ग.)


Block Medical Officer
Block Medical Officer
Dongargaon
C.H.C. DONGARGAON


मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
Chief Medical Officer
Rajnandgaon(C.G.)

Acknowledgment

I would like to express deep and sincere gratitude to MR. GAUTAM PATRA, HOD (department of chemistry, GGV) for his kind and sincere encouragement regarding the internship.

With the hearted greatfulness, I would like to thank CMHO sir for providing me the opportunity to do internship within their organization. I am fortunate that I had the kind association as well kind faculty members.

I extend my deepest thanks to my supervisor Mr. Ramesh Sahu for giving me necessary advice and guideline for the both theoretical and practical knowledge. Also for arranging the facilities to make the internship program more meaningful.

Also, I wish to express my gratitude to the officials and committee members who rendered their help during my internship period.

Finally, I would like to extend my thanks to all the people who worked along with me and supported me during the tasks.

GU. U GHASIDAS
VISHWAVIDYALAYA
BILASPUR(C.G)



SESSION:2023-24
**Pratham Hospital Bilaspur
Internship**

SUBMITTED TO
DR. G.K. PATRA
Sir (HOD)

SUBMITTED BY
Kuldeep shau
Roll No.-221031 **27**

B.sc(Hons) Chemistry 4th sem



प्रथम हॉस्पिटल

A UNIT OF AARADHYA HEALTH CARES

सरकंडा पुलिस थाना के पास, बहतराई रोड, बिलासपुर (छ.ग.)

ई-मेल : prathamhospital2503@gmail.com



SM & HAPPINESS FOR ALL
Reg. No. : TBILA 83934

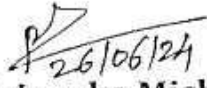
अग्रिम पंजीयन हेतु : 89628-52000, 07752-470323, आपातकालीन सहायता हेतु : 86020-50203


DATE:- 26/06/2024

INTERNSHIP CERTIFICATE

THIS IS TO CERTIFY THAT MR. KULDEEP SAHU STUDENT OF B.Sc(CHEMISTRY) IV SEMESTER FROM GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.). HE WAS COMPLETED 56 HOURS INTERNSHIP (TRAINING) IN PATHOLAB FROM PRATHAM HOSPITAL, BILASPUR(C.G.) SINCE 19/06/2024 TO 25/06/2024. HIS PERFORMANCE WAS GOOD.

WE WISH HIS BRIGHT FUTURE.


Mrs. Priyanka Mishra
HR Manager


Dr. Rajnish Pandey
CEO



AN ISO 9001: 2015 CERTIFIED MULTISPECIALITY HOSPITAL

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Guru Ghasidas Vishwavidyalaya



INTERNSHIP REPORT

On

NPK TEST OF SOIL SAMPLE

Duration: 15 May - 14 June (120 hours)

RAJMOHINI DEVI COLLEGE OF AGRICULTURE AND RESEARCH STATION, AMBIKAPUR

By

Kumari Pranjal Shirvastava

Student of 4th Semester (Chemistry Hons) at Guru Ghasidas Vishwavidyalaya
Bilaspur, Chhattisgarh

In under

DR. S.K.SINHA

(Dean and President, G&PB) IGKV, RMDCARS AMBIKAPUR

AND

DR. R.S.SIDAR

(ASSISTANT PROFESSOR) RMDCARS AMBIKAPUR

MR. AKHILESH LAKRA

FOR LABORATORY WORK

INDIRA GANDHI KRISHI VISHWAVIDYALAYA



No. Dean/RMDCARS/24.0.1
DATE 24.10.24

RAJ MOHINI DEVI COLLEGE OF AGRICULTURE AND RESEARCH STATION AMBIKAPUR (C.G.)

INTERSHIP COMPLETION CERTIFICATE

This is certify that Kumari Pranjali Shrivastava student of B.Sc. IV Semester Department of Chemistry, Guru Chasidas Vishwavidyalaya, Bilaspur (C.G.) has Successfully Completed her internship of (Six credits) one hundred twenty hour on NPK Soil Testing from 15 may 2024 to 14 june 2024 in Raj Mohini Devi College Of Agriculture and Research Station Ambikapur (C.G.).

Her performance in Raj Mohini College of Agriculture And Research Station Ambikapur (C.G.). was Good.

Raj Mohini Devi
In charge of Internship

10/10

24/10/2024

DEAN
R.M.D. College of Agriculture
& Research Station
AMBIKAPUR

INTRODUCTION:



Dedicated gardeners and farmers say they grow soil, not plant. To grow great soil, you've got to do the groundwork, and that means you have to know what you're working with-the type of soil and the major nutrients present or lacking.

Unless you test your soil, you won't know how much fertilizer is needed. Many fields and gardens are overfertilised or given the wrong ratios of well know trio NPK-nitrogen/phosphorus/potassium.

When your soil reaches the lab, it is dried and ground to a smaller size. A sample is mixed with equal amount deionized water, then measured with a pH meter. In the lab by using different methods determine the amount of major nutrient available in the soil sample basically nitrogen, phosphorus and potassium by NPK testing. It is a first step to grow the good soi

GURU GHASIDAS VISHWAVIDYALAYA
Central Institute of Mining and Fuel Research
BILASPUR (C.G.)

(ANALYSIS OF COAL QUALITY)

SUMMER INTERNSHIP REPORT

(15-05-2024 TO 30-06-2024)



SUBMITTED TO
DR. GK PATRA (HOD)
DEPARTMENT OF CHEMISTRY
GURU GHASIDAS VISHWAVIDYALAYA
KONI DIST-BILASPUR (C.G.)

GUIDED BY
DR. MANJULA SARAF
CSIR-CIMFR (BILASPUR)

SUBMITTED BY
MANISHA PATEL
GGV/22/07030
B.SC. 4TH SEMESTER
ROLL. NO. 22103130
GGV KONI BILASPUR (C.G.)



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

27 खोली चौक, पोस्ट बाक्स नं.-41, बिलासपुर 495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र.: सिम्फर नि/एडमिन्/363
Ref No. CIMFRD/ADM/.....J

TO WHOMSOEVER IT MAY CONCERN

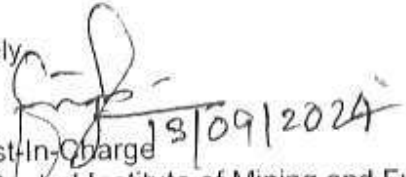
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11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
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I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in

Manisha Patel

CONTENTS OF OUR PROJECT

- 1. INTRODUCTION OF COAL**
- 2. TYPES OF COAL**
- 3. PROPERTY OF COAL**
- 4. METHOD USED TO DETERMINE PROPERTY OF COAL**
- 5. STANDARD MOISTURE OR EQUILIBRATED MOISTURE ON 60% RH ON 40**
- 6. DETERMINATION OF GROSS CALORIFIC VALUE**
- 7. REPORTING OF RESULT**
- 8. OBSERVATION TABLE**
- 9. RESULT AND DISCUSSION**



cmpdi
A Mini Ratna Company

CMPDI INTERNSHIP REPORT

Session: 2023-24

NAME

-

MANSI SINGH

YEAR

-

2ND YEAR (4TH SEMESTER)

ROLL NO.

-

22103131

ENROLLMENT NO.

-

GGV/22/07031

NAME OF INSTITUTE

-

GURU GHASIDAS

VISHWAVIDYALAYA BILASPUR



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीट्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोन्दवाना प्लेस, कान्के रोड, राँची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/0407

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **MANSI SINGH** Enrollment No.- **GGV/22/07031** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD

Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्यावरण) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., क्षेत्र सं-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


C. K. Verma

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., क्षेत्र सं-5
बिलासपुर (छ.ग.)

Features of a Sample Report

Once the lab has completed testing your water, you will receive a report that looks similar to Figure 1. It will contain a list of contaminants tested, the concentrations, and, in some cases, highlight any problem contaminants. An important feature of the report is the units used to measure the contaminant level in your water. Milligrams per liter (mg/l) of water are used for substances like metals and nitrates. A milligram per liter is also equal to one part per million (ppm)--that is one part contaminant to one million parts water. About 0.03 of a teaspoon of sugar dissolved in a bathtub of water is an approximation of one ppm. For extremely toxic substances like pesticides, the units used are even smaller. In these cases, parts per billion (ppb) are used. Another unit found on some test reports is that used to measure radon--picocuries per liter. Some values like pH, hardness, conductance, and turbidity are reported in units specific to the test.

In addition to the test results, a lab may make notes on any contaminants that exceeded the PA DEP drinking water standards. For example, in Figure 1 the lab noted that total coliform bacteria and iron both exceeded the standards.

Retain your copy of the report in a safe place as a record of the quality of your water supply. If polluting activities such as mining occur in your area, you may need a record of past water quality to prove that your supply has been damaged.

Table 1: Standards, symptoms, and potential health effects of regulated contaminants.

Contaminant	Acceptable Limit	Sources/Uses	Potential Health Effects at High Concentrations
* Recommended level in water at which remedial action should be taken. No mandatory standards have been set.			
Atrazine	3 ppb or. 003 ppm	used as a herbicide; surface or ground water contamination from agricultural runoff or leaching	heart and liver damage
Benzene	5 ppb or. 005 ppm	gasoline additive; usually from accidental oil spills, industrial uses, or landfills	blood disorders like aplastic anemia; immune system depression; acute exposure affects central nervous system causing dizziness, headaches; long term exposure increases cancer risks
Lead at tap	0.015 ppm or 15 ppb	used in batteries; lead gasolines and pipe solder; may be leached from brass faucets, lead caulking, lead pipes, and lead soldered joints	nervous disorders and mental impairment, especially in fetuses and infants; kidney damage; blood disorders and hypertension; low birth weights
Nitrates (NO ₃)	10 mg/l (nitrate-N) 45 mg/l (nitrate)	soil by-product of agricultural fertilization; human and animal waste leaching to groundwater	methemoglobinemia (blue baby disease) in infants (birth to 6 months); low health threat to children and adults
Total Coliform	<1 coliform/100 ml	possible bacterial or viral contamination from human sewage or animal manure	diarrheal diseases, constant high level exposure can lead to cholera and hepatitis
Radon	300 pCi/l*	naturally occurring gas formed from	breathing gas increases chances of lung cancer;

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED

(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Mithlesh Kumar Chandra

GGV/22/07070
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कंपनी / भारत सरकार का एक लोक उपक्रम)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

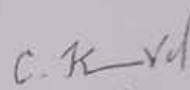
क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/22

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **MITHLESH KUMAR CHANDRA** Enrollment No.- **GGV/22/07070** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envr.)
सी.एम.पी.डी.आई., क्षेत्र सं-5/C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., क्षेत्र सं-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साइट/Website: www.cmpdi.co.in

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air

2. Water

3. Soil

4. Noise

Explanations Of The Following Sample Parameters

1. **Air Parameters** — SO_x , NO_x , PM10, PM2.5, PM100, Ozone, Ammonia, Mercury.
2. **Water Parameters** —
 1. **Alkalinity Of Water** – Alkalinity of the sample Can be analysed Within 24Hrs. of getting the Sample(OH^- , CO_3^{2-} , HCO_3^-).

PROCEDURE FOR ALKALINITY TEST

Take 20 ml sample in a conical flask and add mix indicator to it . Fill the burette with 0.02N H_2SO_4 On titrating it colour changes from Green to Pink And total alkalinity can we known.

2. **Total Hardness** — Total Hardness Should be checked within 6 months of getting the sample.Total hardness can be checked with the complexometric Titration.

(Date- 25/05/24)

PROCEDURE TO CHECK TOTAL HARDNESS

Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

SUMMER INTERNSHIP REPORT

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
RI-5, BILASPUR

(A subsidiary of Coal India Limited)

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)
Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C
Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted to:-

Prof. G.K Patra (HOD)
Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Submitted By :-

Mukul Dev Patel
GGV/22/07032
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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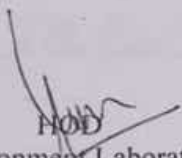
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गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखंड (भारत)
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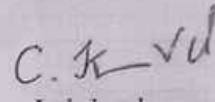
क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/05

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **MUKUL DEV PATEL** Enrollment No.- **GGV/22/07032** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024 to 08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD
Environment Laboratory
Bilaspur, CMPDIL

प्रमुख (पर्यावरण) / H.O.D. (Envr.)
सी.एम.पी.डी.आई., शे. सं-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., शे.सं.-5
बिलासपुर (छ.ग.)

OVERVIEW

INTRODUCTION OF THE COMPANY

Central Mine Planning & Design Institute (CMPDI) is a government of India enterprise having its corporate headquarters at Ranchi in India.

It is a fully owned subsidiary of Coal India Limited (CIL) and a Schedule-B company.

MISSION

The mission of CMPDI is to provide total consultancy in coal and mineral exploration , mining , engineering and allied fields as premier consultants in India and a leading one in international arena.

CMPDI holds a position of eminence in the field of environmental engineering both in coal and other sectors. CMPDI has well equipped network of 7 laboratories located in various coalfields to regularly monitor air, water, noise parameters across India.

BRANCHES OF CMPDI :

- 1.) R.I.1 (ASANSOL)
- 2.) R.I. 2 (DHANBAD)
- 3.) R.I. 3 (RANCHI)
- 4.) R.I.4 (NAGPUR)
- 5.) R.I.5 (BILASPUR)
- 6.) R.I. 6 (SINGHRAULI)
- 7.) R.I. 7 (BHUBANESHWAR)

LEARNING

During my internship at CMPDI, I learned the following skills.

1. SAMPLING
2. TYPES OF SAMPLES

**GURU GHASIDAS VISHWAVIDYALAY
KONI BILASPUR (C.G)**



DEPARTMENT OF CHEMISTRY

Sub:- Summer intership (Patholab)

SUBMITTED BY:-

MAST. NAGENDRA SINGH PAIKRA

BSC (HONS) CHEMISTRY

, FOURTH SEMESTER

ROLL NUMBER :- 22103133



प्रथम हॉस्पिटल

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सरकंडा पुलिस थाना के पास, बहतराई रोड, बिलासपुर (छ.ग.)

ई-मेल : prathamhospital2503@gmail.com



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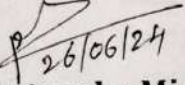
अग्रिम पंजीयन हेतु : 89628-52000, 07752-470323, आपातकालीन सहायता हेतु : 86020-50203


DATE:- 26/06/2024

INTERNSHIP CERTIFICATE

THIS IS TO CERTIFY THAT MR. NAGENDRA SINGH PAIKRA STUDENT OF B.Sc(CHEMISTRY) IV SEMESTER FROM GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.). HE WAS COMPLETED 56 HOURS INTERNSHIP (TRAINING) IN PATHOLAB FROM PRATHAM HOSPITAL, BILASPUR (C.G.) SINCE 19/06/2024 TO 25/06/2024. HIS PERFORMANCE WAS GOOD.

WE WISH HIS BRIGHT FUTURE.


Mrs. Priyanka Mishra
HR Manager


Dr. Rajnish Pandey
CEO



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दवाईयों से संबंधित निराकरण हेतु : 74704-83487, एम्बुलेंस सुविधा हेतु : 86020-50203

COMPLETE BLOOD COUNT

NAME	DEFINATION	NORMAL RANGE
Hb or Hbg (hemoglobin)	This is the protein in your blood that holds the oxygen.	men -14 to 17 gm/dl women - 12 to 15 gm/dL
White blood cells (WBCs)	also called leukocytes or leucocytes, are the cells of the immune system	4,500 to 10,000 cells per microliter (cells/mcL).
RBC (red blood cell count)	they carry oxygen through your body. They also help filter carbon dioxide	Men- 14 to 17 gm/dL women - 12 to 15 gm/dL.
Hct (hematocrit).	is the volume % percentage of red blood cell.	It is normally 40% for men and 31% for women.
MCV (mean corpuscular volume).	This is the average size of your red blood cells.	MCV score - 80 to 95.
Platelets.	also called thrombocytes are a component of blood whose function is to stop bleeding by clumping and clotting blood vessel	140,000 to 450,000 cells/mcL

SUMMER INTERNSHIP REPORT 2024

ON COAL ANALYSIS AND TECHNIQUES

CSIR-CIMFR BILASPUR



GUIDED BY: -

DR. MANJULA SARAF



Department of Chemistry
School of Studies of Physical science
Guru Ghasidas Vishwavidyalaya (A Central University)
Bilaspur, Chhattisgarh-495009

SUBMITTED TO: -

PROF. G.K. PATRA
Professor & Head
Department of Chemistry
GGV, Bilaspur

SUBMITTED BY: -

NAGESHWARI SAHU
BSc Hons Chemistry IV Semester
Enrol. No: - **GGV/22/07034**
Roll No: - **22103134**



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



विज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research
(विज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विभाग और औद्योगिकी विभाग, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बागसा रो.-41, बिलासपुर-495001 (म.प्र.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.O.)
(आई एस आर 9001 प्रमाणित संस्थान / ISO 9001 Certified Institution) : -13.08.2024

संदर्भ क्र. : सिमफर नि/एसीएम/२०२४/३६३
Ref. No. : CIMFRB/ADM/...../

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 16th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.


Name of the participants: -

1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakosh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
10. Miss. Garima Yadav
11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

16. Miss. Payal Jaiswal
17. Miss. Nageswari Sahu
18. Miss. Anjali Khunte

I wish all the success in their future endeavour.

Sincerely,


13/09/2024

Scientist In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001



क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-776-2271450
Bilaspur : ☎ (07752) 271681-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in

CONTENTS OF OUR PROJECT

1. INTRODUCTION OF COAL
2. TYPES OF COAL
3. PROPERTY OF COAL
4. METHOD USED TO DETERMINE PROPERTY OF COAL
5. STANDARD MOISTURE OR EQUILIBRATED MOISTURE ON 60% RH ON 40
6. DETERMINATION OF GROSS CALORIFIC VALUE
7. REPORTING OF RESULT
8. OBSERVATION TABLE
9. RESULT AND DISCUSSION

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



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Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Nidhi shukla

GGV/22/07035
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखण्ड (भारत)
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/04

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **NIDHI SHUKLA** Enrollment No.- **GGV/22/07035** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., से. सं. 5/C.M.P.D.I., RI-5
बिलासपुर (छ.ग.)/Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
परी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., से. सं. 5
बिलासपुर (छ.ग.)



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ई-मेल/E-mail:
वेब साईट/Website: www.cmpdi.co.in

INTERNSHIP REPORT

Metal Ion Analysis in Fresh Water

Atomic absorption spectroscopy (AAS)

Several types of detection techniques for metal ions in drinking water sample are available like atomic absorption spectroscopy (AAS), Flame emission, Vapour generation accessory (VGA), Graphite tube atomizer (GTA)

Atomic Absorption Spectrophotometer analytical instrument is based on the principle Beer Lambert's Law, Which states that absorbance is directly proportional to concentration

Principles

The technique makes use of the atomic absorption spectrum of a sample in order to assess the concentration of specific analytes within it. It requires standards with known analyte content to establish the relation between the measured absorbance and the analyte concentration and relies therefore on the [Beer-Lambert law]. ## Analyzing Samples with Atomic Absorption Spectroscopy (AAS)

Atomic Absorption Spectroscopy (AAS) measures the concentration of specific elements in a sample by analyzing their unique "fingerprint" in the form of an atomic absorption spectrum. Here's how it works:

Step 1: Sample Preparation:**

- The sample is typically dissolved in a suitable solvent (acids, water) to create a liquid solution. This ensures the analytes are present as free atoms, ready for absorption.
- For solid samples like ores or minerals, additional steps like grinding and digestion may be required to break down the matrix and liberate the analytes.

Step 2: Atomization:**

- The prepared solution is nebulized into a fine mist and introduced into a high-temperature flame (air-acetylene or nitrous oxide-acetylene mix).
- The intense heat in the flame excites the electrons in the analyte atoms, promoting them to higher energy levels.

Step 3: Absorption:**

- Simultaneously, a hollow cathode lamp containing the same element as the analyte emits a specific wavelength of light that corresponds to the energy difference between the excited and ground state of the analyte atoms.
- As the emitted light passes through the atomized sample, some photons are absorbed by the excited analyte atoms, causing them to return to their ground state. This absorption decreases the intensity of the light at the specific wavelength.

**GURU GHASIDAS
VISHWAVIDYALAYA**
BILASPUR(C.G)



SESSION:2023-24
Pratham Hospital Bilaspur
Internship

SUBMITTED TO
DR. G.K. PATRA
Sir (HOD)

SUBMITTED BY
Nikhil yadav
Roll No.-22103171

B.sc(Hons) Chemistry 4th sem



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प्रथम हॉस्पिटल

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ई-मेल : prathamhospital2503@gmail.com



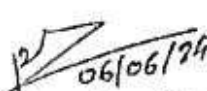
अग्रिम पंजीयन हेतु : 89628-52000, 07752-470323, आपातकालीन सहायता हेतु : 86020-50203


DATE:- 06/06/2024

INTERNSHIP CERTIFICATE

THIS IS TO CERTIFY THAT MR. NIKHIL YADAV STUDENT OF B.Sc (CHEMISTRY) IV SEMESTER FROM GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.). HE WAS COMPLETED 56 HOURS INTERNSHIP (TRAINING) IN PATHOLAB FROM PRATHAM HOSPITAL, BILASPUR (C.G.) SINCE 30/05/2024 TO 05/06/2024. HIS PERFORMANCE WAS GOOD.

WE WISH HIS BRIGHT FUTURE.


Mrs. Priyanka Mishra
HR Manager


Dr. Rajnish Pandey
CEO



AN ISO 9001: 2015 CERTIFIED MULTISPECIALITY HOSPITAL

Insurance Partners For • ESIC • INDIAN RAILWAY • CSPDCL • AAYUSHMAN BHARAT YOJNA • WAREHOUSE CORPORATION OF INDIA • KICI LOMBARD • IFFCO TOKIO • CHOLA MS • MEDIC ASSIST TPA
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दवाईयों से संबंधित निराकरण हेतु : 74704-83487, एम्बुलेंस सुविधा हेतु : 86020-50203



cmpdi

A Mini Ratna Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(कोयल इंडिया लिमिटेड की सहायक कंपनी / Coal India Limited की सहायक कंपनी)
राज्यपालिका भवन, कान्के रोड, रांची - 834 008, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975G01001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

कमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/021

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **NOORI SABA** Enrollment No.- **GGV/22/07036** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt. - Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

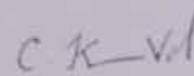


HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envr.)

सी.एम.पी.डी.आई., शे.सं.-5/C.M.P.D.I., N.

बिलासपुर (छ.ग.) / Bilaspur (C.G.)



Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)

प्रयोग कक्षा एवं परीक्षण केंद्र

सी.एम.पी.डी.आई., शे.सं.-5

बिलासपुर (छ.ग.)



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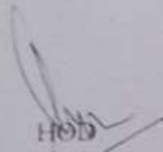
An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीट्यूट लिमिटेड
(सीएल ईन्फिन्ट्रा लिमिटेड की भुगतानी कंपनी / संपूर्ण स्वाम्यता में एक लोक संप्रदाय)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI0001223

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/

दिनांक: 27-08-2024

This is to certify that Shri/Smt/Miss **NOORI SABA** Enrollment No.- **GGV/22/07036** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

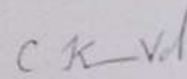

HOD

Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)

सी.एम.पी.डी.आई., से. सं.-5/C.M.P.D.I., RI-5

बिलासपुर (छ.ग.) / Bilaspur (C.G.)


C K Verma

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)

प्रयोगशाला एवं परीक्षण केन्द्र

सी.एम.पी.डी.आई., से. सं.-5

बिलासपुर (छ.ग.)



ITI/BATSA

आर्य समाज मंदिर



ISO 9001:2015



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेबसाइट/Website: www.cmpdi.co.in

TABLE OF CONTENT

- **Acknowledgement**
- **Company profile**
- **Analysis or discussion**
- **My outcome learning**

**Guru Ghasidas Vishwavidyalaya, a Central University
Bilaspur (C.G.)**



INTERNSHIP REPORT

**Internship on “Quality Assessment of Coal”
At CSIR-Central Institute of Mining and Fuel
Research, Bilaspur.**

Submitted By:

OJASVI KASHYAP

Roll No: 22103137

B.Sc. Chemistry Hons, 4th Semester



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research
(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बाक्स नं-41, बिलासपुर-495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)
(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्फर वि/एडीएच/2024/363
Ref. No. : CIMFR/ADM/.....J

TO WHOMSOEVER IT MAY CONCERN

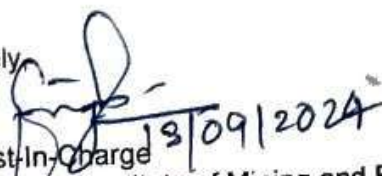
This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 16th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

- ✓ 1. Miss. Ojasvi Kashyap
2. Miss. Anvesha Jaiswal
3. Miss. Bhawana Narmada
4. Miss. B. Tushara
5. Miss. Diksha Dewangan
6. Mr. Prakhar Mishra
7. Mr. Rahul Kumar Rakesh
8. Miss. Jaya Kashyap
9. Miss. Sakshi Tiwari
10. Miss. Garima Yadav
11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450
Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in



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1. INTRODUCTION
2. METHODS OF COAL ANALYSIS
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 - 2.2 Proximate Analysis
 - 2.3 Determination of Gross Calorific Value
3. STANDARD OPERATING PROCEDURE
4. OBSERVATION
5. RESULT AND DISCUSSION

Internship Report

On

"PATHOLOGY LAB"

**IN THE COMMUNITY HEALTH CENTER, DIPKA ,
KORBA(C.G.)**



Under the guidance of- Dr. HARI PRAKASH KANWAR sir and Dr. RAJESH KANWAR sir.

• SUBMITTED TO :-

Dr. G.K. Patra (HOD, Chemistry)
Guru Ghasidas Vishwavidyalaya,
Bilaspur ,Chhattisgarh.

• SUBMITTED BY :-

OMPRAKASH
B.Sc.chemistry(Hons.)
4th semester

कार्यालय प्रभारी चिकित्सा अधिकारी
सामुदायिक स्वास्थ्य केन्द्र दीपका जिला-कोरबा छ.ग.

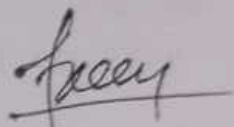
Email id- chcdipka2012@gmail.com

क्र./प्र.चि.अधि./2024 /107

दीपका दिनांक 19-06-24

प्रशिक्षण प्रमाण पत्र

प्रमाणित किया जाता है कि श्री/कु./श्रीमती ओमप्रकाश पिता श्री बाबूलाल के द्वारा दिनांक 18.05.2024 से 18.06.2024 दिनांक तक एक माह का प्रशिक्षण अवधि सामु. स्वा. केन्द्र दीपका जिला कोरबा छ.ग. के अंतर्गत प्रशिक्षण प्राप्त किये है। हम इनके उज्जवल भविष्य की कामना करते है।



प्रभारी चिकित्सा अधिकारी
सामु. स्वा. केन्द्र दीपका
जिला- कोरबा(छ.ग.)

INCHARGE MEDICAL OFFICER
CHC DIPKA
Dist. - Korba (C.G.)

RED BLOOD CELL MORPHOLOGY

INTRODUCTION –

Morphological changes of red cells can be detected in most thalassaemia carriers. An examination of a stained peripheral blood smear may be helpful in the evaluation of cases.

Reagents used –

- 1] May-Grunwald's stain powder (0.3 g)
- 2] Methyl alcohol (100 ml)
- 3] The staining solution is made up by swirling to mix, then warming in a 56°C water bath for 15 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 4] Giemsa's stain powder (1 g)
- 5] Glycerol (66 ml)
- 6] Methyl alcohol (66 ml)
- 7] Staining solution is made up by adding the stain to the glycerol, then warming in a 56°C water bath for 90-120 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 8] Phosphate buffer 0.066 M pH 6.8 (Sorensen's):
- 9] KH_2PO_4 : 9.1 g
- 10] Na_2HPO_4 : 9.5 g (or $\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$: 14.2 g) Dissolve in 1 litre distilled H_2O to make 0.066 M buffer of pH 6.8 .

Add 50 ml of phosphate buffer 0.066 M pH 6.8 to each litre of water used to dilute stains and wash films.

PROCEDURE –

Preparation of smears -

EDTA anticoagulated venous whole blood or capillary blood is used to prepare a blood film. After drying at room temperature the blood film can be stained with May-Grumwald (or Wright stain).

Project Report on Coal

Analysis and Techniques

CSIR – CIMFR Bilaspur

{Central Institute for Mining and Fuel Research}

(Summer Internship 2024)



Submitted To –
Dr.G K Patra PROF.
DEP. OF CHEMISTRY
(HOD)

Submitted By -
PAYAL JAISWAL
BSC 4TH SEMESTER
GGV/22/07039



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



विज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research

(विज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

27 खोल चौक, पोस्ट बाबासाहेब-41, बिलासपुर-495001 (म.प्र.) / 27 Khol Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institution): -13.08.2024

संदर्भ क्र. : सिस्सिए/सीएम/सीआई/2024/363
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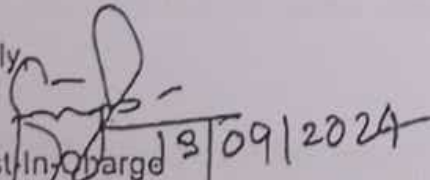
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13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

16. Miss. Payal Jaiswal
17. Miss. Nageswari Sahu
18. Miss. Anjali Khunte

I wish all the success in their future endeavour.

Sincerely,


Scientist In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

WHAT IS COAL ?

The process of coal formation begins with the accumulation of dead plant matter in wet lands, which breaks down into peat through peatification. Over time, layers of dirt and rock cover the peat, and the resulting pressure and heat transform the plant matter into coal.

Coal is a combustible mineral substance that can be black or dark brown in color and is made up of carbonized vegetation matter. It is mainly composed of carbon, hydrogen, oxygen, nitrogen, sulfur, moisture, and ash.

Coal undergoes several transformation sometimes during its formation process, starting as lignite, then becoming sub-bituminous coal, and finally bituminous coal. The highest quality coal is anthracite coal. Overtime as the coal transforms, it becomes denser and loses water and other compounds.

Coal is classified into different types based on its carbon content, calorific value, and the presence of impurities. The primary types of coal found in India are:

1. **Peat** :It's the precursor of coal. It's the soft organic material partly decayed plant and mineral material. It develops under high pressure and undergoes physical and chemical changes .This process is called coalification
2. **Anthracite**: Has highest carbon content (80-95%) and calorific value with low volatile matter, and moisture.
3. **Bituminous**: Has moderate to high carbon content (45-86%) and significant calorific value, used widely for electricity generation and industrial processes.
4. **Sub-bituminous**:Has lower carbon content than bituminous coal with higher moisture content and moderate calorific value.
5. **Lignite**:Has lowest carbon content with lower calorific value and highest moisture content



Central Hospital Manendragarh Chhattisgarh

A Summer Internships Report

2024

Submitted by

Prahlad Kumar pandey

R. No. - 22103140



**Guru Ghasidas Vishwavidyalay
A Central University Bilaspur
Chhattisgarh**



कार्यालय मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छत्तीसगढ़)



E-Mail - cmhomcb@gmail.com & dpmumcb@gmail.com

क्रमांक / 17.63 / स्था0 / 2024

मनेन्द्रगढ़ दिनांक 01.07.2024

// प्रमाण पत्र //

मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी, जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छ0ग0) के पत्र क्रमांक / 1416 / स्था0 / 2024 मनेन्द्रगढ़, के तहत श्री प्रहलाद कुमार पाण्डेय द्वारा प्राथमिक स्वास्थ्य केन्द्र नागपुर के अन्तर्गत लैब प्रशिक्षण/अनुभव हेतु 6 दिवस का कार्यादेश जारी किया गया था। जिसके तहत प्रभारी चिकित्सा अधिकारी, प्राथमिक स्वास्थ्य केन्द्र नागपुर का पत्र क्रमांक / 17 / स्था0 / 2024 नागपुर दिनांक 29.06.2024 के तहत प्रार्थी द्वारा दिनांक 20.05.2024 से दिनांक 25.05.2024 तक (कुल 6 दिवस) प्रशिक्षण/अनुभव प्राप्त किया है।

अतः इनको 6 दिवस का प्रशिक्षण अनुभव प्रमाण पत्र जारी करते हुए, उज्जवल भविष्य की कामना करते हैं।

मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छ0ग0)
मनेन्द्रगढ़, दिनांक 01.07.2024

पृ.क्रमांक / 17.64 / स्था0 / 2024 /
प्रतिलिपि:-

1. खण्ड चिकित्स अधिकारी, सामुदायिक स्वास्थ्य केन्द्र मनेन्द्रगढ़, जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छ0ग0) की ओर सादर सूचनार्थ।
2. प्रभारी चिकित्सा अधिकारी, प्राथमिक स्वास्थ्य केन्द्र-नागपुर जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छ0ग0) की ओर सूचनार्थ।
3. कार्यालयीन प्रति।

मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
जिला-मनेन्द्रगढ़-चिरमिरी-भरतपुर (छ0ग0)



MCL

**Mahanadi Coalfields
Limited**

GURU GHASIDAS VISHWAVIDYALAYA

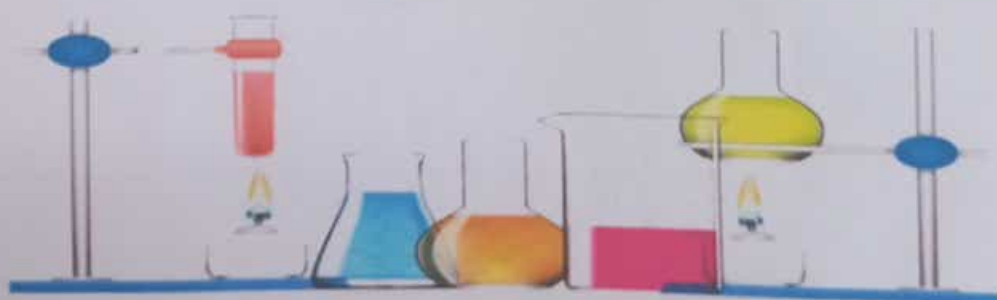


KONI BILASPUR (CG)

SESSION 2023-24

DEPARTMENT OF CHEMISTRY

INTERNSHIP REPORT



GUIDED BY -

(M.K.MISHRA)
Quality Manager
IBVCL, MCL

**SUBMITTED BY -
PRAJWAL SHRIVASTAVA**

Roll No. :- 22103172
Enrollment No. :- GGVI/22/07072
B.Sc. 4th Sem.



MCL

(Under the Jurisdiction of Sambalpur Court only)

Registered Office:

JAGRITI VIHAR

PO: UCE Burla-768018

Dist: Sambalpur (Odisha)

Phone: PBX 0663-2542461-2542470

Fax: 0663-2542770-2431880



IB VALLEY COAL ANALYSIS LABORATORY

OFFICE OF THE CM/PROJECT OFFICER

SAMLESWARI OPENCAST PROJECT

IB VALLEY AREA

PO: Rampur Colliery-768225

Dist. Jharsuguda (Odisha)

Phone: 06645-244156 Fax: 06645-244153

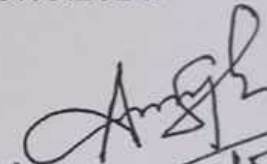
Email: ibvcal.mcl@gmail.com

Ref:- MCL/IBV/SOCP/IBVCL/24-25/598

dt 7/6/24

CERTIFICATE

This is to certify that Shri Prajwal Shrivastava has successfully completed the Internship Training at IB Valley Coal Analysis Laboratory from dated 27.05.2024 to 01.06.2024 (approx. 48hrs.), vide letter No. MCL/IBV/SOCP/Per/214 date. 27.05.2024 with subsequent letter No. MCL/GM/IBV/TRAINING/2024/84 date 23.05.2024.


07/06/24

✓ Lab-In charge,
IB Valley Coal Analysis Laboratory,
SOCP, IB Valley Area, MCL

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MCL

**Mahanadi Coalfields
Limited**

PROJECT REPORT ON COAL

Analysis and Techniques

CSIR-CIMFR Bilaspur

(Summer internship 2024)



GUIDED BY - DR Manjula Saraf

Submitted By -Prakhar Mishra

Enrollment no-GGV/22/07041

Roll no - 22103141

Dept– Chemistry

GURU GHASIDAS UNIVERSITY

SUBMITTED TO- DR . G.K Patra

Date of Submission – 30/08/2024



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



विज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Scientific & Industrial Research

(विज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बावरा पं.-41, बिलासपुर-495001 (उ.प्र.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institution) : -13.09.2024

संदर्भ क्र. : सिम्फर नि/एडीएम/सी.आई.आर./2024/363
Ref. No. : CIMFRB/ADM/.....J

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 18th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

- | | |
|------------------------------|--------------------------|
| 1. Miss. Ojasvi Kashyap | 16. Miss. Payal Jaiswal |
| 2. Miss. Anvesha Jaiswal | 17. Miss. Nageswari Sahu |
| 3. Miss. Bhawana Narmada | 18. Miss. Anjali Khunte |
| 4. Miss. B. Tushara | |
| 5. Miss. Diksha Dewangan | |
| 6. Mr. Prakhar Mishra | |
| 7. Mr. Rahul Kumar Rakosh | |
| 8. Miss. Jaya Kashyap | |
| 9. Miss. Sakshi Tiwari | |
| 10. Miss. Garima Yadav | |
| 11. Miss. Surbhi Shukla | |
| 12. Miss. Sneha Singh Rajput | |
| 13. Miss. Manisha Patel | |
| 14. Mr. Anjay Choubey | |
| 15. Mr. Shreyash Pandey | |

I wish all the success in their future endeavour.

Sincerely,

Scientist-In-Charge

CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in

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1. INTRODUCTION OF COAL
2. TYPES OF COAL
3. PROPERTY OF COAL
4. METHOD USED TO DETERMINE PROPERTY OF COAL
5. STANDARD MOISTURE OR EQUILIBRATED MOISTURE ON 60% RH ON 40
6. DETERMINATION OF GROSS CALORIFIC VALUE
7. REPORTING OF RESULT
8. OBSERVATION TABLE
9. RESULT AND DISCUSSION

Project Report On Coal

Analysis and Techniques

CSIR-CIMFR Bilaspur

{Central Institute For Mining And Fuel RESEARCH}

(Summer Internship 2024)



Submitted BY - RAHUL KUMAR RAKESH

Enrollment no. - GGV/22/07042

Bsc. (Chemistry) 4th semester

GURU GHASIDAS VISHWAVIDHYALAYA

Bilaspur

Submitted to-

Prof. G.K. Patra (HOD)

Department of Chemistry (GGV)



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)

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(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institute) Date: -13.09.2024

संदर्भ क्र. : सिम्फर वि/एडीएम/2024/363

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I wish all the success in their future endeavour.

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Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

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वेबसाइट / Website : www.cimfr.nic.in

**GURU GHASIDAS
VISHWAVIDYALAYA**
BILASPUR(C.G)



SESSION:2023-24

CMPDI INTERNSHIP REPORT

SUBMITTED TO
DR. G.K. PATRA
Sir (HOD)

SUBMITTED BY
RAJESH CHANDRA
Roll No.-22103143

B.sc(Hons) Chemistry 4th sem



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(कोल इण्डिया लिमिटेड की अलुखणी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोन्दवाना प्लेस, कान्के रोड, राँची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/18

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **RAJESH CHANDRA** Enrollment No.- **GGV/22/07043** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD

Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)

सी.एम.पी.डी.आई., क्षेत्र सं-5 / C.M.P.D.I., RI-5

बिलासपुर (छ.ग.) / Bilaspur (C.G.)


C. K. Verma

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., क्षेत्र सं-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air 2. Water 3. Soil 4. Noise

Explanations Of The Following Sample Parameters

1. **Air Parameters** — SO_x , NO_x , PM_{10} , $\text{PM}_{2.5}$, PM_{100} , Ozone, Ammonia, Mercury.
2. **Water Parameters** —
 1. **Alkalinity Of Water** – Alkalinity of the sample Can be analysed Within 24Hrs. of getting the Sample(OH^- , CO_3^{2-} , HCO_3^-).

PROCEDURE FOR ALKALINITY TEST

Take 20 ml sample in a conical flask and add mix indicator to it . Fill the burette with 0.02N H_2SO_4 On titrating it colour changes from Green to Pink And total alkalinity can we known.

2. **Total Hardness** — Total Hardness Should be checked within 6 months of getting the sample.Total hardness can be checked with the complexometric Titration.

(Date- 25/05/24)

PROCEDURE TO CHECK TOTAL HARDNESS

Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

DEPARTMENT OF BIOCHEMISTRY
CHHATTISGARH INSTITUTE OF MEDICAL SCIENCES,
BILASPUR (CG)



सर्वे संतु निरामयः

WORK BOOK
INTERNSHIP POSTING (SUMMER)
BIOCHEMISTRY

NAME: Renu Manikam

CLASS: BSc Hons (chemistry) 4th Sem

ROLL NO: 22103144

EN. NO.: C464v/22107044

DURATION: FROM TO

DEPARTMENT OF BIOCHEMISTRY
CIMS, BILASPUR (CG)



जैव-रसायन विभाग
छत्तीसगढ़ आयुर्विज्ञान संस्थान (सिम्स), बिलासपुर -495001
Fax (O) - 07752-224200, Phone (I) - 07752-230030, 222302
Website - www.cimsbilaspur.ac.in, email - deancims@gmail.com

क्र. २६३ / जैवरसायन / सिम्स / 24

बिलासपुर दिनांक 10/06/2024

CERTIFICATE

This is to certify that Ms. RENU MARKAM, IVth semester student of B.Sc. (Hon.) Chemistry, Guru Ghasidas Vishwavidyalaya (C.G.) has Successfully completed her summer internship at the Clinical Biochemistry laboratory, CIMS, Bilaspur from 27/05/2024 to 10/06/2024.

During this period she has undergone extensive training on the application of the Beer-Lambert Law in clinical Biochemistry.

We commend her dedication and hard work throughout the internship. We wish her all the best for future endeavors.

Head

Deptt. of Biochemistry
CIMS, Bilaspur (C.G.)
HEAD

Department of Biochemistry
CIMS, Bilaspur (C.G.)

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**GURU GHASIDAS
VISHWAVIDYALAYA**
BILASPUR(C.G)



SESSION:2023-24

CMPDI INTERNSHIP REPORT

SUBMITTED TO
DR. G.K. PATRA
Sir (HOD)

SUBMITTED BY
RUDRA CHANDRA
Roll No.-22103145

B.sc(Hons) Chemistry 4th sem



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(कोल इण्डिया लिमिटेड की अनुषंगी कंपनी / भारत सरकार का एक लोक उद्योग)
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/20

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **RUDRA CHANDRA** Enrollment No.- **GGV/22/07045** has successfully completed the internship training at CMPDIL Environment Laboratory, R1-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्यावरण) / H.O.D. (Envt.)
सी.एम.पी.डी.आई. ब्लॉक सं. 5 / C.M.P.D.I., R1-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई. ब्लॉक सं.- 5
बिलासपुर (छ.ग.)

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air

2. Water

3. Soil

4. Noise

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(Date- 25/05/24)

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Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED

(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Sakshi Kashyap

GGV/22/07046

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/16

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss SAKSHI KASHYAP Enrollment No. : GGV/22/07046 has successfully completed the internship training at CMPDI, Environment Laboratory, RI-5 Bilaspur, Distt - Bilaspur (C.G.) 495006, dated from 24-05-2024 to 08-06-2024 (Approx. 112 Hours). Vide letter No:- CMPDI/HRD/INTERSHIP TRAINING/2024/I-1485392, Dated 21-05-2024


Environment Laboratory
Bilaspur, CMPDI.
प्रयोगशाला (पर्यावरण) / H.O.D. (Envt.)
सी.एम.पी.डी.आई. सं-5/CM.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDI.
प्रभारी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई. सं-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साइट/Website: www.cmpdi.co.in

EXECUTIVE SUMMARY

As a part of my B.sc. Course, I had the privilege to visit "CMPDI, RI-5, BILASPUR" to do my internship course. I have completed my internship course of 30 hours from 24th may 2024 to 10th june 2024, in the Environmental lab of CMPDI.

During my internship period I have gained valuable knowledge and experience in the field of various sample analysis to conclude quality of air, water, soil, etc

On the basis of my learning I have completed my internship report on the topic: "Workings of environmental lab" under the guidance of MR SANTOSH SINGH sir and MRS DEEPANWITA BIN mam.

The aim of internship was to put the theoretical knowledge of analysis of various samples into practical use and it also imparted the whole processing and work flow right for better analysis result of various samples.

The first week of internship aimed at providing detailed information about the workings and processes of Heavy metals.

During second week of internship training, we learnt about the parameters and processes to analyse various samples collected from different areas.

To conclude the summary, I gained and experience practical knowledge in the field of analysis. It indeed was a great learning process.

Internship Report

On

"PATHOLOGY LAB"

**IN THE COMMUNITY HEALTH CENTER, DIPKA ,
KORBA(C.G.)**



राष्ट्रीय स्वास्थ्य मिशन
सर्वे सन्तु निरामया

Under the guidance of- Dr. HARI PRAKASH KANWAR sir and Dr. RAJESH KANWAR sir.

• SUBMITTED TO :-

Dr. G.K. Patra (HOD, Chemistry)
Guru Ghasidas Vishwavidyalaya,
Bilaspur ,Chhattisgarh.

• SUBMITTED BY :-

SAKSHI TANWAR
B.Sc.chemistry(Hons.)
4th semester

Sakshi Tanwar

कार्यालय प्रभारी चिकित्सा अधिकारी
सामुदायिक स्वास्थ्य केन्द्र दीपका जिला-कोरबा छ.ग.

Email id- chcdipka2012@gmail.com

क्र./प्र.चि.अधि./2024 /108

दीपका दिनांक 19-6-24

प्रशिक्षण प्रमाण पत्र

प्रमाणित किया जाता है कि श्री/कु./श्रीमती साक्षी तंवर पिता श्री रोहणी कुमार सिंह तंवर के द्वारा दिनांक 18.05.2024 से 18.06.2024 दिनांक तक एक माह का प्रशिक्षण अवधि सामु. स्वा. केन्द्र दीपका जिला कोरबा छ.ग. के अंतर्गत प्रशिक्षण प्राप्त किये है। हम इनके उज्जवल भविष्य की कामना करते है।



प्रभारी चिकित्सा अधिकारी
सामु. स्वा. केन्द्र दीपका
जिला- कोरबा(छ.ग.)

INCHARGE MEDICAL OFFICER
CHC DIPKA
Dist. - Korba (C.G.)



RED BLOOD CELL MORPHOLOGY

INTRODUCTION –

Morphological changes of red cells can be detected in most thalassaemia carriers. An examination of a stained peripheral blood smear may be helpful in the evaluation of cases.

Reagents used –

- 1] May-Grunwald's stain powder (0.3 g)
- 2] Methyl alcohol (100 ml)
- 3] The staining solution is made up by swirling to mix, then warming in a 56°C water bath for 15 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 4] Giemsa's stain powder (1 g)
- 5] Glycerol (66 ml)
- 6] Methyl alcohol (66 ml)
- 7] Staining solution is made up by adding the stain to the glycerol, then warming in a 56°C water bath for 90-120 min. Allow to cool to room temperature with occasional shaking, then filter after standing for 24 hrs.
- 8] Phosphate buffer 0.066 M pH 6.8 (Sorensen's):
- 9] KH_2PO_4 : 9.1 g
- 10] Na_2HPO_4 : 9.5 g (or $\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$: 14.2 g) Dissolve in 1 litre distilled H_2O to make 0.066 M buffer of pH 6.8 .

Add 50 ml of phosphate buffer 0.066 M pH 6.8 to each litre of water used to dilute stains and wash films.

PROCEDURE –

Preparation of smears -

EDTA anticoagulated venous whole blood or capillary blood is used to prepare a blood film. After drying at room temperature the blood film can be stained with May-Grumwald (or Wright stain).

PROJECT REPORT ON COAL

Analysis and Techniques

CSIR-CIMFR Bilaspur

(Summer internship 2024)



GUIDED BY - DR Manjula Saraf

Submitted By - SAKSHI TIWARI

Enrollment No- GGV/22/07049

Roll no - 22103149

Dept- Chemistry

GURU GHASIDAS UNIVERSITY

SUBMITTED TO- DR . G.K Patra

Date of Submission – 30/08/2024



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



विज्ञानिक तथा औद्योगिक अनुसंधान परिषद् / Council of Scientific & Industrial Research

(विज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
27 खोली चौक, पोस्ट बावसा नं.-41, बिलासपुर-495001 (छ.ग.) / 27 Kholi Chowk, P.O.No.-41, Bilaspur-495001 (C.G.)

(आई एस ओ 9001 प्रमाणित संस्थान / ISO 9001 Certified Institution) : -13.09.2024

संदर्भ नं. : सिस्पर नि/एसीएन/२०२४/१६३
Ref. No. : CIMFR/ADM/...../

TO WHOMSOEVER IT MAY CONCERN

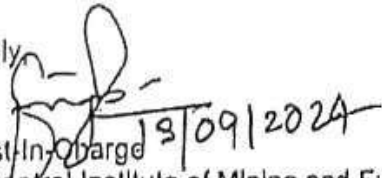
This is to certify that the following students of class B. Sc. IV Sem, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh visited CSIR-Central Institute of Mining and Fuel Research, Regional Research Centre, Bilaspur, Chhattisgarh from 18th May to 30th June 2024 and learnt the analysis of Coal & Coke, Handling of sophisticated analytical instruments and reporting of results.

Name of the participants: -

- | | |
|------------------------------|--------------------------|
| 1. Miss. Ojasvi Kashyap | 16. Miss. Payal Jaiswal |
| 2. Miss. Anvasha Jaiswal | 17. Miss. Nageswari Sahu |
| 3. Miss. Bhawana Narmada | 18. Miss. Anjali Khunte |
| 4. Miss. B. Tushara | |
| 5. Miss. Diksha Dewangan | |
| 6. Mr. Prakhar Mishra | |
| 7. Mr. Rahul Kumar Rakosh | |
| 8. Miss. Jaya Kashyap | |
| 9. Miss. Sakshi Tiwari | |
| 10. Miss. Garima Yadav | |
| 11. Miss. Surbhi Shukla | |
| 12. Miss. Sneha Singh Rajput | |
| 13. Miss. Manisha Patel | |
| 14. Mr. Anjay Choubey | |
| 15. Mr. Shreyash Pandey | |

I wish all the success in their future endeavour.

Sincerely,


Scientist In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450
Bilaspur : ☎ (07752) 271681-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrb@yahoo.co.in
वेबसाइट / Website : www.cimfr.nic.in

CONTENTS OF OUR PROJECT

1. INTRODUCTION OF COAL
2. TYPES OF COAL
3. PROPERTY OF COAL
4. METHOD USED TO DETERMINE PROPERTY OF COAL
5. STANDARD MOISTURE OR EQUILIBRATED MOISTURE ON 60% RH ON 40
6. DETERMINATION OF GROSS CALORIFIC VALUE
7. REPORTING OF RESULT
8. OBSERVATION TABLE
9. RESULT AND DISCUSSION

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED

(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

SAMIKSHA YADAV

GGV/22/07050

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(कोयला इण्डिया लिमिटेड की अनुबंधी कंपनी / भारत सरकार का एक लोक उद्योग)
गोन्दवाना प्लेस, कंके रोड, रांची - 834 008, झारखण्ड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GO1001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/0103

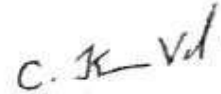
दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **SAMIKSHA YADAV** Enrollment No - **CGV/22/07050** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours). Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD

Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., से. सं.-5/C.M.P.D.I., RI-5
बिलासपुर (छ.ग.)/Bilaspur (C.G.)


C. K. Verma

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., से. सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No.:
फैक्स नम्बर/Fax No.:
ई-मेल/E-mail:
वेब साईट/Website:

OVERVIEW

INTRODUCTION OF THE COMPANY

Central Mine Planning & Design Institute (CMPDI) is a government of India enterprise having its corporate headquarters at Ranchi in India.

It is a fully owned subsidiary of Coal India Limited (CIL) and a Schedule-B company.

MISSION

The mission of CMPDI is to provide total consultancy in coal and mineral exploration, mining, engineering and allied fields as premier consultants in India and a leading one in international arena.

CMPDI holds a position of eminence in the field of environmental engineering both in coal and other sectors. CMPDI has well equipped network of 7 laboratories located in various coalfields to regularly monitor air, water, noise parameters across India.

BRANCHES OF CMPDI :

- 1.) R.I.1 (ASANSOL)
- 2.) R.I. 2 (DHANBAD)
- 3.) R.I. 3 (RANCHI)
- 4.) R.I 4 (NAGPUR)
- 5.) R.I 5 (BILASPUR)
- 6.) R.I. 6 (SINGHRAULI)
- 7.) R.I. 7 (BHUBANESHWAR)

SUMMER INTERNSHIP2024



PROJECT ON WATER
ANALYSIS AND DM PLANT

SUBMITTED BY-
SANKALP SINGH PALERIA

JPL/HR/2024-25

Date: 10.06.2024

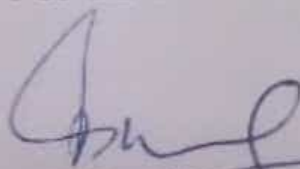
TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mr. Sankalp Singh Palaria S/o Mr. Suraj Palaria, pursuing B.Sc. - Chemistry (4th Sem.) from Guru Ghashidas Vishwavidyalaya, Bilaspur (C.G.) has successfully completed his Internship at Jindal Power Ltd., Tamnar, Raigarh (C.G.).

The duration of his Internship was w.e.f. 06.06.2024 to 10.06.2024.

We wish him all the success for his future endeavours!

For JINDAL POWER LTD



R P Pandey
General Manager - HR



Jindal Power Limited

CIN No. : U04010CT1995PLC008985

Corporate Office Jindal Centre, 12 Bhikaji Cama Place, New Delhi 110 066

T +91 11 4146 2000 F +91 11 2616 1271 E info@jindalpower.com W www.jindalpower.com

Registered Office Tamnar 496 107, District Raigarh, Chhattisgarh

About-

The OP Jindal Super Thermal Power Plant, an Independent Power Plant (IPP) with a 1000 MW (4x250 MW) unit was established at Tamnar in the Raigarh district of Chhattisgarh. The capacity was later expanded with a 2400 MW (4x600 MW) thermal power plant, bringing the total generation capacity to 3400 MW. It uses domestic coal from the nearby Gare Palma coal block, which is also owned by JSPL. The power plant is designed to use supercritical technology, which is more efficient and has lower emissions compared to subcritical plants. The plant is part of JSPL's larger integrated steel and power plant complex in Raigarh, which also includes a steel plant and a captive power plant. The plant's massive capacity of 3,400 MW plays a crucial role in meeting the power demands of several states in northern and central India, ensuring a reliable and stable supply of electricity. The plant has created employment opportunities for local communities and has contributed to the economic development of the Raigarh district and surrounding areas through ancillary industries and services. As part of JSPL's integrated steel and power plant complex, the OP Jindal Thermal Power Plant supports the energy-intensive steel production process, ensuring a reliable and cost-effective power supply for the steel plant.

Guru Ghasidas Vishwavidyalya



Internship Report

On

NPK TEST OF SOIL SAMPLE

Duration: 20 May 2024 - 30 June 2024 (160 hour)

Govt. Lahiri P.G. College, Chirimiri

By

Miss Saumya Mishra

Student of 4th Semester (Chemistry Hons.) at Guru Ghasidas
Vishwavidyalya Bilaspur, Chhattisgarh


Under supervision of

Dr. Awanish K. Patel

Assistant Professor of Chemistry

Govt. College Janakpur

Supervisor


Dr. Awanish K. Patel
Assistant Professor
Govt. Naveen Collage Janakpur
Distt - M C B (C.G.)

9993889272


Principal

Govt. Lahiri P.G. College, Chirimiri
Distt. - MCB (C.G.)





GOVT LAHIRI P.G. COLLEGE, CHIRMIRI

This certificate is presented to **Miss Saumya Mishra**, a student of B.Sc. 4th semester, Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.), on successful completion of the internship. Miss Saumya Mishra worked on the topic **NPK Test of Soil Sample** at Research Center of Chemistry, **Govt. Lahiri. P.G. College Chirmiri** under the supervision of **Dr. Awanish K. Patel**, Assistant. Professor of Chemistry, for 160 hours falling in between dated **20.05.2024 - 30.06.2024**.

Date:- **30 JULY 2024**
Place:- **CHIRMIRI**

Supervisor


Dr. Awanish K. Patel
Assistant Professor
Govt. Naveen Collage Janakpur
Distt. - M.C.B.(C.G.)
9993889272


PRINCIPAL
Govt. Lahiri P.G. College, Chirmiri
Distt. - MCB (C.G.)

INTRODUCTION:-

To increase the fertility of crop it is important to determine what is the more amount of nitrogen (N) phosphorus (P) and potassium (K) required. Another important factor is to determine the soil P^H value. The concentration of H^+ ions that is P^H is being used in the laboratory to know the amount of fertilizer to needed in a field. This will improve the quality of soil and yield a crop that has good quality. In this project a color sensor with fiber optic is developed for determining the NPK components of soil. To know the soil P^H we used a P^H sensor. The principle of sensor probe used for NPK detection depends on absorption of color by solution.

In order to complete the increasing demands of the food production over the years there is need to look upon the fertilizers that are required. The fertilizers mostly have nitrate (N) phosphate (P) and potassium (K). These fertilizers need to be used in proper proportion. If these fertilizers are used in improper quantity then they might yield crops of bad type. These crops might be bad in color, length, taste etc. Amount of NPK depend on the type of crop and on the status of growth of plant. The quantity of fertilizer that is to be used depends upon the present amount of NPK components of soil. To reduce fertilizers the researchers in agro field are also finding ways to increase crop yield.

As the components vary over the cultivated field on a small scale many researchers have made an attempt to develop sensors to detect the contents of nutrients. To study the behavior of NPK integrated crop management system has been designed. Based on sensing position and information technology precision agriculture is a farm management strategy that may contribute in optimizing the soil quality. Currently analysis of components of soil is done using the chemicals which is harmful to environment, time consuming as well as costly.

Along with the NPK components of soil P^H is another important factor that has great importance because of its close resemblance in biochemical processes for e.g., When the P^H level is low the growth as well as yield from farm is mostly low whereas if it is high then it is also good. If the P^H is neutral then some crops grow good.

Internship Report On **"SOIL ANALYSIS"**

In The Office Of Assistant Soil Testing Officer
Dhamtari, (C.G.)



Under the guidance of- MR. PRABHAT KUMAR KUMBHAKAR
sir and MR. OM SAHU sir.

• SUBMITTED TO :-

Dr. G.K. Patra (HOD, Chemistry)
Guru Ghasidas Vishwavidyalaya,
Bilaspur, Chhattisgarh.

Sahu.

• SUBMITTED BY :-

Senidhya Sahu
B.Sc. chemistry (Hons.)
4th Semester



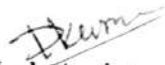
**OFFICE OF ASSISTANT SOIL TESTING OFFICER
DISTT-DHAMTARI (C.G.)**

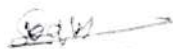


CERTIFICATE OF INTERNSHIP

This is to certify that Miss Senidhya Sahu, student of B.Sc. IV Sem. Chemistry Honours of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.), has successfully completed a Summer Internship Program of 30 Hours on "Soil Testing" during 16th to 24th May 2024.

During the Period of her Internship Program with us, she had been exposed to different Processes and was found diligent, hardworking and inquisitive. We wish her every success in her life and career.


Lab Assistant
Distt-Dhamtari (C.G.)


Senior Agriculture Development
Officer, Distt-Dhamtari (C.G.)


Assistant Soil Testing officer
Distt- Dhamtari (C.G.)

EXECUTIVE SUMMARY

As a part of my B.sc. Course , I had a privilege to join "soil analysis centre , dhamtari { C.G }" to do my internship course . I have completeed my internship course of 30 hours from 16th may 2024 to 24th may 2024 . under soil analysis centre whose training centre is located at rudri , dhamtari , chhattisgarh .

During my internship period I have gained valuable knowledge and experience In the field of agriculture .

Therefore on the basis of my learning I have completed my internship report on the topic : "soil analysis" under the guidance of Mr. PRABHAT KUMAR KUMBHAKAR and MR. OM SAHU sir { chemist }.

The aim of internship was to put the theoretical knowledge of soil science into practical use and it also imparted the whole processing and work flow right for better soil fertility .

The first week of internship aimed at providing detailed information about the soil and instrument introduction. also aimed to provide theoretical concept about soil and crop production of different areas. The lab assistant provide us 12 parameters to measure the fertility and productivity of soil

GURU GHASIDAS UNIVERSITY BILASPUR

Summer - Internship Report
2023-24 -

Name - Sharada prasad flwau

Roll No. - 22103154

Internship - Medicine department -

Hospital → Mangalam hospital, Vadodara

Deptt → chemistry - Gujarat.

B.Sc. (Hons) 7th sem.

MH/BRD/2024/OP/00192

DATE: 11-06-2024

TO WHOM SO EVER IT MAY CONCERN

THIS IS TO CERTIFY THAT **MR. SHARDA PRASAD TIWARI**, AGE 22/ MALE HAS PURSUING HIS INTERNSHIP AS OBSERVER IN PHARMACY DEPARTMENT AT MANGALAM HOSPITAL FROM 27/05/2024 TO 07/06/2024.

SO, KINDLY REQUESTING YOU TO CONSIDER THE ABOVE FACTS AND DO THE NEEDFUL TO HIM.

AUTHORISED SIGNATORY


MANGALAM HOSPITAL
MANGALAM HOSPITAL
A1, A16 / SMITA PARK SOCIETY,
NEAR ISCON CIRCLE,
NEW COURT ROAD,
VADODARA. PIN-390007.

NOTE -: THIS CERTIFICATE IS NOT FOR MEDICO LEGAL PURPOSE.

Table of contents -

Introduction to the hospital

Departments and facilities -

Services

Diagnostic service.

Departments - aff at -

Introduction to pharmacy. Department.

Roles for hospital pharmacists



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उद्योग)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

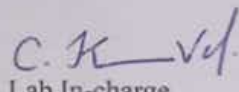
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/17

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **SHREYA KASHYAP** Enrollment No.- **GGV/22/07055** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


H.O.D.
Environment Laboratory
Bilaspur, CMPDIL
विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., क्षेत्र सं-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., क्षेत्र सं-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No.:
फैक्स नम्बर/Fax No.:
ई-मेल/E-mail:
वेब साइट/Website: www.cmpdi.co.in



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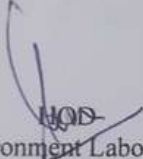
सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
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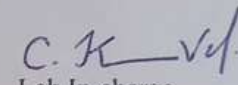
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/17

दिनांक: 27-08-2024

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H.O.D.
Environment Laboratory
Bilaspur, CMPDIL
विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., से. सं-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


C. K. Verma
Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई., से. सं.-5
बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साइट/Website: www.cmpdi.co.in

About heavy metals in water:

- Definition of Heavy Metals:

- Heavy metals are metallic elements with high densities, atomic weights, or atomic numbers.
- Common heavy metals include lead (Pb), mercury (Hg), cadmium (Cd), arsenic (As), chromium (Cr), and nickel (Ni).

- Sources of Heavy Metals in Water:

- Industrial discharge (e.g., mining, smelting, manufacturing).
- Agricultural runoff (e.g., pesticides, fertilizers).
- Wastewater treatment plants.
- Atmospheric deposition (e.g., emissions from vehicles and factories).
- Natural sources (e.g., weathering of rocks and volcanic activity).

- Health Effects of Heavy Metals:

- Lead (Pb): Neurological damage, developmental issues in children, kidney damage.
- Mercury (Hg): Neurological and developmental disorders, kidney damage.
- Cadmium (Cd): Kidney damage, bone fractures, respiratory issues.
- Arsenic (As): Skin lesions, cancer, cardiovascular diseases.
- Chromium (Cr): Respiratory issues, skin irritation, cancer (hexavalent chromium).
- Nickel (Ni): Allergic reactions, respiratory issues, potential carcinogen.

- Environmental Impact:

- Bioaccumulation in aquatic organisms.

Project Report On Coal

Analysis and Techniques

CSIR-CIMFR Bilaspur

{ Central Institute For Mining And Fuel RESEARCH }

(Summer Internship 2024)



Submitted By - Shreyash Pandey



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research
(वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार)

(Under the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt of India)
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संदर्भ क्र. : सिम्फार वि/रडीएच/2024/363
Ref. No. : CIMFRB/ADM/.....J

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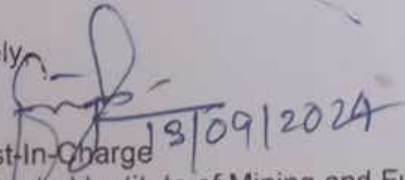
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6. Mr. Prakhar Mishra
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11. Miss. Surbhi Shukla
12. Miss. Sneha Singh Rajput
13. Miss. Manisha Patel
14. Mr. Anjay Choubey
15. Mr. Shreyash Pandey

I wish all the success in their future endeavour.

Sincerely,


Scientist-In-Charge
CSIR-Central Institute of Mining and Fuel Research
Regional Research Centre, Bilaspur, Chhattisgarh-495001

क्षेत्रीय अनुसंधान केन्द्र / Regional Research Centre : बिलासपुर / Bilaspur : ☎ +91-775-2271450

Bilaspur : ☎ (07752) 271581-88, 271357, 411328 फैक्स / Fax : 07752-271450, ईमेल आईडी / Email ID : oic_cfrib@yahoo.co.in
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WHAT IS COAL ?

The process of coal formation begins with the accumulation of dead plant matter in wet lands, which breaks down into peat through peatification. Over time, layers of dirt and rock cover the peat, and the resulting pressure and heat transform the plant matter into coal.

Coal is a combustible mineral substance that can be black or dark brown in color and is made up of carbonized vegetation matter. It is mainly composed of carbon, hydrogen, oxygen, nitrogen, sulfur, moisture, and ash.

Coal undergoes several transformation sometimes during its formation process, starting as lignite, then becoming sub-bituminous coal, and finally bituminous coal. The highest quality coal is anthracite coal. Overtime as the coal transforms, it becomes denser and loses water and other compounds.

Coal is classified into different types based on its carbon content, calorific value, and the presence of impurities. The primary types of coal found in India are:

1. **Peat** :It's the precursor of coal. It's the soft organic material partly decayed plant and mineral material. It develops under high pressure and undergoes physical and chemical changes .This process is called coalification
2. **Anthracite**: Has highest carbon content (80-95%) and calorific value with low volatile matter, and moisture.
3. **Bituminous**: Has moderate to high carbon content (45-86%) and significant calorific value, used widely for electricity generation and industrial processes.
4. **Sub-bituminous**:Has lower carbon content than bituminous coal with higher moisture content and moderate calorific value.
5. **Lignite**:Has lowest carbon content with lower calorific value and highest moisture content



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RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



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Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By:-

Shruti Goswami

GGV/22/07057

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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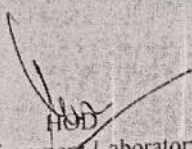
सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड
(बोर्ड इण्डिया लिमिटेड की अग्रणी कंपनी / भारत सरकार की एक लोक उद्योग)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखण्ड (भारत)
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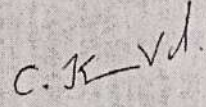
दिनांक: 27-08-2024

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/02

This is to certify that Shri/Smt./Miss **SHRUTI GOSWAMI** Enrollment No - GGV/22/07057 has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Dist. - Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No. - CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.


HOD
Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्यावरण) / H.O.D. (Envr.)
सी.एम.पी.डी.आई. से. सं. - 5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई. से. सं. - 5
बिलासपुर (छ.ग.)

OVERVIEW

As an intern in the environment lab of CMPDI, I got a list of tasks to complete every day. To get the idea of sample testing in the lab, I had to perform different tests based on different parameters of the samples collected. The tasks I undertook and my learning as an intern includes:

- *understanding how sampling is done*
- *types of samples*
- *testing of samples based on different parameters*
- *testing different water samples*
- *learned and operated different instruments*

AIR SAMPLING

Necessity of taking sampling

- *To study of atmosphere behind stopping.*
- *To know status of fire.*
- *Proper limit time of opening sealed off area.*
- *Determining contaminant type.*
- *Determining contaminants concentration.*

Types of air sampling

- *Static air sampling.*
- *Personal air sampling.*

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH

SUMMER INTERNSHIP REPORT



SUBMITTED TO:

Dr. SHRIPAL SINGH
QUALITY MANAGER
CSIR-CIMFR

SUBMITTED TO:

Dr. G.K PATRA (HOD)
DEPARTMENT OF CHEMISTRTY

GUIDED BY:

Dr. MANJULA SHARAFF
TECHNICAL MANAGER
CSIR-CIMFR

SUBMITTED BY:

SNEHA SINGH RAJPUT
BSC. HONS (4TH) SEMESTER
GGV/22/05078



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद / Council of Science & Industrial Research

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S. Rajput

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3.	OBSERVATION
4.	RESULT
5.	DISCUSSION AND CONCLUSION

GURU GHASIDAS UNIVERSITY



Internship Report

Environmental Analysis- Testing of parameters of Air, Water, Soil, Noise

Submitted by- Sukanya Ghosh

Submitted to- Department of Chemistry

Student Roll No.:22103159

Enrollment No.-GGV/22/07059

Course: B.Sc. Chemistry honours(Semester-IV)

Session- 2023-24

Internship Period: 24/05/2024 to 08/06/2024

Company Name: CMPDI



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(कोल इण्डिया लिमिटेड की अधुर्गता कम्पनी / भारत सरकार का एक लोक उपक्रम)
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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/15

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **SUKANYA GHOSH** Enrollment No.- **GGV/22/07059** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD

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Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Envt.)
सी.एम.पी.डी.आई., क्षेत्र सं-5 / C.M.P.D.I., RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

C. K. Verma
Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

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सी.एम.पी.डी.आई., क्षेत्र सं-5
बिलासपुर (छ.ग.)

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- 7. Atomic Absorption Spectroscopy**
- 8. Inductively Coupled Plasma Mass Spectroscopy**

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH

SUMMER INTERNSHIP REPORT



SUBMITTED TO

Dr. SHRIPAL SINGH
QUALITY MANAGER
CSIR-CIMFR

GUIDED BY

Dr. MANJULA SHARAFF
TECHNICAL MANAGER
CSIR - CIMFR



SUBMITTED TO

PROF. G.K PATRA
HEAD OF DEPARTMENT
CHEMISTRY (GGV)

SUBMITTED BY

SURBHI SHUKLA
BSC (HONS) CHEMISTRY
4TH SEMESTER
GGV/22/07060



सी.एस.आई.आर.केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान CSIR-Central Institute of Mining And Fuel Research



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RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Tanmay Patel

GGV/22/07062

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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दिनांक: 27-08-2024

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बिलासपुर (छ.ग.) / Bilaspur (C.G.)


Lab In-charge
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Bilaspur, CMPDIL
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CMPDI, RI-V, Bilaspur,

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Dr. G.K Patra (HOD)

Department of Chemistry

Guru Ghasidas Vishwavidyalaya

Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur

CMPDI, RI-V, Bilaspur,

Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Tejas Yadav

GGV/22/07063

B.Sc. 4th Semester

GGV Koni, Bilaspur (C.G)



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फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

About heavy metals in water:

- Definition of Heavy Metals:

- Heavy metals are metallic elements with high densities, atomic weights, or atomic numbers.
- Common heavy metals include lead (Pb), mercury (Hg), cadmium (Cd), arsenic (As), chromium (Cr), and nickel (Ni).

- Sources of Heavy Metals in Water:

- Industrial discharge (e.g., mining, smelting, manufacturing).
- Agricultural runoff (e.g., pesticides, fertilizers).
- Wastewater treatment plants.
- Atmospheric deposition (e.g., emissions from vehicles and factories).
- Natural sources (e.g., weathering of rocks and volcanic activity).

- Health Effects of Heavy Metals:

- Lead (Pb): Neurological damage, developmental issues in children, kidney damage.
- Mercury (Hg): Neurological and developmental disorders, kidney damage.
- Cadmium (Cd): Kidney damage, bone fractures, respiratory issues.
- Arsenic (As): Skin lesions, cancer, cardiovascular diseases.
- Chromium (Cr): Respiratory issues, skin irritation, cancer (hexavalent chromium).
- Nickel (Ni): Allergic reactions, respiratory issues, potential carcinogen.

- Environmental Impact:

- Bioaccumulation in aquatic organisms.

Guru Ghasidas University, Bilaspur (C.G.)



Session - 2023 - 24

B.Sc. 4th Semester

**SUMMER INTERNSHIP REPORT ON –
“CMPDI”**

Guided By :

Prof. Gautam Kumar Patra
(HOD and Professor)
Departement of Chemistry

Submitted By :

Name : Umashankar
Roll No. 22103165
Enrolment No. GGV/22/07065



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सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीट्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कंपनी / भारत सरकार का एक लोक उद्योग)
गोन्दवाना प्लेस, कान्के रोड, रांची - 834 008, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 008, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

An ISO 9001: 2015 & ISO 37001: 2016 Certified Company

क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/CS/23

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **UMASHANKAR** Enrollment No.- **GGV/22/07065** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours). Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD

Environment Laboratory
Bilaspur, CMPDIL

विभागाध्यक्ष (पर्यावरण) / H.O.D. (Env)
सी.एम.पी.डी.आई. बिलासपुर (छ.ग.) / C.M.P.D.I. RI-5
बिलासपुर (छ.ग.) / Bilaspur (C.G.)

C.K.V.

Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL

प्रभारी (पर्यावरण)
प्रयोग शाला एवं परीक्षण केंद्र
सी.एम.पी.डी.आई., के.सं.-5
बिलासपुर (छ.ग.)

CMPDI ENVIRONMENTAL LAB

REPORT

Types of Samples –

(Date- 24/05/24)

1. Air 2. Water 3. Soil 4. Noise

Explanations Of The Following Sample Parameters

1. **Air Parameters** — SO_x , NO_x , PM10, PM2.5, PM100, Ozone, Ammonia, Mercury.
2. **Water Parameters** —
 1. **Alkalinity Of Water** – Alkalinity of the sample Can be analysed Within 24Hrs. of getting the Sample(OH^- , CO_3^{2-} , HCO_3^-).

PROCEDURE FOR ALKALINITY TEST

Take 20 ml sample in a conical flask and add mix indicator to it. Fill the burette with 0.02N H_2SO_4 On titrating it colour changes from Green to Pink And total alkalinity can we known.

2. **Total Hardness** — Total Hardness Should be checked within 6 months of getting the sample.Total hardness can be checked with the complexometric Titration.

(Date- 25/05/24)

PROCEDURE TO CHECK TOTAL HARDNESS

Take 50ml sample in a conical flask than add 0.03g 0.1M EDTA and EBT Indicator on titrating, its colour changes from wine red to blue we add approx. 1ml of hardness buffer to maintain the pH Range 9-11.

GURU GHASIDAS
VISHVAVIDYALAYA



Topic

Clinical Biochemistry Laboratory
[PATHOLOGY]

Summer Internship

Submitted by

Varun Jogi

BSc Chemistry Hons

Fourth Semester

Roll No 22103166

Enrollment No GGV/22/07066

**PRIMARY HEALTH CENTER ARJUNI, DONGARGAON,
RAJNANDGAON C.G.**

INTERNSHIP COMPLIATION CERTIFICATE

This is certify that VARUN JOGI Student of B.Sc. IV Semester Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) has Successfully Completed his internship of (Six credits) THIRTY HOURS on "Pathology" from 17.05.2024 to 31.05.2024 in Primary health center Arjuni.

His performance in PHC Arjuni Dongargaon, during this period was Good.

Date :-

Incharge of Internship
सर्वदर अर्जुनी
बिलासपुर-डोंगरगाव
जिला-राजनंदगाव (उ.ग.)

4/6/24

Block Medical Officer
Block Medical Officer
C.H.C. DONGARGAON

मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
जिला-राजनंदगाव (उ.ग.)
Chief Medical Officer
Rajnandgaon (C.G.)

The Clinical Biochemistry Laboratory

the use and the requirements of laboratory

Introduction :

Clinical Biochemistry tests comprise over one third of all hospital laboratory investigation. clinical biochemistry is that branch of laboratory medicine in which chemical and biochemical methods are applied to the study of disease while in theory this embraces all non-morphological studies, in practice it is usually, though not exclusively, confined to studies on blood and urine because of the relative ease in obtaining such specimens although analysis are made on other body fluids such as gastric aspirate and cerebrospinal fluid.

The use of Biochemical tests :-

Biochemical investigations are involved, to varying degrees, in every branch of clinical medicine.

- The results of biochemical tests may be of use in diagnosis and in the monitoring of treatment.
- Biochemical tests may also be of value in screening for disease or in assessing the prognosis once a diagnosis has been made (fig. 1)
- The biochemistry laboratory is often involved in research into the biochemical basis of disease and in clinical trials of new drugs.

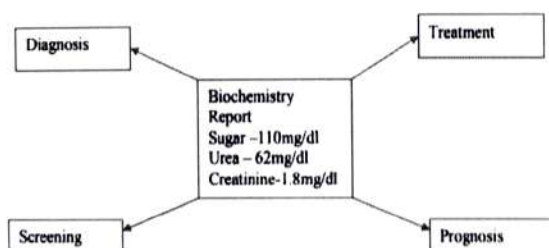


Fig. 1 How Biochemical Tests are used



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Central Mine Planning & Design Institute Limited

RI-5, Bilaspur C.G

Internship Report

Department -Environment

Presented By

vashu mahan

22103167

GGV/22/07067

BSc(honc.) Chemistry

2nd year (2024)

Guru Ghasidas Central University Bilaspur C.G

Email - vashumahan208@gmail.com



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गोन्दवाना प्लेस, कान्के रोड, राँची - 834 008, झारखंड (भारत)
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क्रमांक: CMPDI/HRD/INTERNSHIP TRAINING/2024/02/08

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **VASHU MAHAN** Enrollment No.- **GGV/22/07067** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024 to 08-06-2024** (Approx. 112 Hours), Vide letter No.- CMPDI/HRD/INTERNSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD

Environment Laboratory

Bilaspur, CMPDIL

विभागाध्यक्ष (पर्या.) / H.O.D. (Env.)

सी.एम.पी.डी.आई., से. सं.-5 / C.M.P.D.I., RI-5

बिलासपुर (छ.ग.) / Bilaspur (C.G.)

Lab In-charge

Environment Laboratory

Bilaspur, CMPDIL

प्रभारी (पर्यावरण)

प्रयोग शाला एवं परीक्षण केन्द्र

सी.एम.पी.डी.आई., से. सं.-5

बिलासपुर (छ.ग.)



फोन नम्बर/Phone No. :

फैक्स नम्बर/Fax No. :

ई-मेल/E-mail:

वेब साईट/Website: www.cmpdi.co.in

CMPDI Environmental Lab Report

Type Of Sample:

- 1) Air
- 2) Water
- 3) Heavy metal
- 4) Soil

Parameter Of Air

Parameter	Description	Acceptable Level (Guidelines)	Preservation Time
Particulate Matter (PM10)	Particles with diameters of 10 micrometers or less	$< 50 \mu\text{g}/\text{m}^3$ (24-hour average, WHO)	Immediate, no preservation
Particulate Matter (PM2.5)	Particles with diameters of 2.5 micrometers or less	$< 25 \mu\text{g}/\text{m}^3$ (24-hour average, WHO)	Immediate, no preservation
Ozone (O3)	Ground-level ozone formed by chemical reactions between pollutants	$< 100 \mu\text{g}/\text{m}^3$ (8-hour average, WHO)	Immediate, no preservation
Nitrogen Dioxide (NO2)	Emitted from vehicles and industrial activity	$< 40 \mu\text{g}/\text{m}^3$ (annual mean, WHO)	Immediate, no preservation
Sulfur Dioxide (SO2)	Produced from burning fossil fuels	$< 20 \mu\text{g}/\text{m}^3$ (24-hour average, WHO)	Immediate, no preservation
Carbon Monoxide (CO)	Colourless, orderless gas from combustion processes	$< 10 \text{mg}/\text{m}^3$ (8-hour average, WHO)	Immediate, no preservation
Lead (Pb)	Toxic metal from industrial processes	$< 0.5 \mu\text{g}/\text{m}^3$ (annual mean, WHO)	Collected on filters, no specific preservation
Volatile Organic Compounds (VOCs)	Organic chemicals that easily vaporize	Variable, benzene: $< 5 \mu\text{g}/\text{m}^3$ (annual mean, WHO)	Immediate, stored in airtight containers
Ammonia (NH3)	Emitted from agricultural processes and industrial activity	$< 1 \mu\text{g}/\text{m}^3$ (annual mean, WHO)	Immediate, no preservation

CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED
(A subsidiary of Coal India Limited)

RI-5, BILASPUR

SUMMER INTERNSHIP REPORT

(24/05/2024 – 08/06/2024)



Submitted to :-

Shri R.A. Khan (HOD)

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Dr. G.K Patra (HOD)

Department of Chemistry
Guru Ghasidas Vishwavidyalaya
Koni Dist: Bilaspur (CG)

Guided By:-

Shri Kumaravel C

Environmental Lab, Bilaspur
CMPDI, RI-V, Bilaspur,
Seepat, Road Dist: Bilaspur (CG)

Submitted By :-

Yogita Verma

GGV/22/07068
B.Sc. 4th Semester
GGV Koni, Bilaspur (C.G)



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क्रमांक: CMPDI/HRD/INTERSHIP TRAINING/2024/02/06

दिनांक: 27-08-2024

This is to certify that Shri/Smt./Miss **YOGITA VERMA** Enrollment No.- **GGV/22/07068** has successfully completed the internship training at CMPDIL Environment Laboratory, RI-5 Bilaspur, Distt.- Bilaspur (C.G.) 495006, dated from **24-05-2024** to **08-06-2024** (Approx. 112 Hours). Vide letter No.- CMPDI/HRD/INTERSHIP TRAINING/2024/E-1485392, Dated 21-05-2024.

HOD
Environment Laboratory
Bilaspur, CMPDIL

प्रमाणित करने वाले: H.O.D. (Envt.)
पर्यावरण प्रयोगशाला, को. एम. पी. डी. आई,
बिलासपुर, झारखंड/Bilaspur (C.G.)

C. J. K. Vd
Lab In-charge
Environment Laboratory
Bilaspur, CMPDIL
प्रभारी (पर्यावरण)
प्रयोगशाला एवं परीक्षण केन्द्र
सी.एम.पी.डी.आई, क्षे.सं.-5
बिलासपुर (छ.ग.)



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ई-मेल/E-mail:
वेब साइट/Website: www.cmpdi.co.in

CMPDI Overview

Headquarters Ranchi
Established 1 November 1975 (Coal India Day)
Branches 7 Regional Institutes
Accreditations QCI, NABL, NABH, NABET

Regional Institutes

Institute	Location
RI-1	Asansol, West Bengal
RI-2	Dhanbad, Jharkhand
RI-3	Ranchi, Jharkhand
RI-4	Nagpur, Maharashtra
RI-5	Bilaspur, Chhattisgarh
RI-6	Singrauli, Madhya Pradesh
RI-7	Bhubaneswar, Odisha

RI-5 (Bilaspur) Departments

Department	Function
Headquarters	Regional Director's office
P&A	Personnel and Administration
Finance	Financial Management
Geology	Geological Exploration
Drilling	Drilling operations
Mining	Opencast and Underground Mining
Environment	Environmental Management
Geomatics	Quantification and Spatial Analysis

The CMPDI Environment Laboratory is specialized in the analysis of heavy metals and other environmental parameters.

The basics of heavy metal analysis at CMPDI :-

1. Overview of Heavy Metals in Environmental Analysis

Heavy metals are naturally occurring elements that can be toxic in high concentrations. Commonly analysed heavy metals include:

Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni), Zinc (Zn)

2. Purpose of Heavy Metal Analysis

Environmental Monitoring: Assessing the impact of mining activities on soil, water, and air.