

Government College, Karsog
District Mandi (HP)-175011
Telephone/ Fax no. 01907-222116
E-mail: gckarsog-hp@nic.in
Website: www.gckarsog.edu.in



1.2.3 Curriculum enrichment practices (e.g. projects, surveys, educational tours and industry visits)

Curriculum enrichment practices are very important because they help improve students' learning by connecting classroom knowledge with real-life learning. Educational tours and industry visits are especially useful as they allow students to see practical work, new technologies, and real working environments. Educational tours give students a chance to see historical, cultural, scientific, and natural places directly. This real-world experience helps them understand classroom lessons better, increases their curiosity, and supports learning across different subjects. These tours also help in personality development by improving communication skills, teamwork, and social interaction. Industrial visits give students practical exposure to how different industries work. Students learn about work processes, quality checks, management systems, and new developments. They also get to know about career options, necessary job skills, and workplace behaviour.

Educational Tour Report

Duration: November 21–23, 2024

Organized by: Government College, Karsog

Participants:

- **Students:** 36 (B.Sc. I, II, and III-Year Life Sciences)
- **Faculty Members:**
 - Dr. Lomeshwar, Assistant Professor, Botany
 - Prof. Pankaj Gupta, Assistant Professor, Zoology
 - Ms. Sita Devi, Laboratory Assistant, Botany

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Introduction

An educational tour was organized by Government College, Karsog for Life Science students with the objective of providing practical exposure and experiential learning relevant to their academic curriculum. The tour included visits to two significant research and training centers—**GB Pant National Institute of Himalayan Environment, Mohal, Kullu**, and the **Trout Fishery Farm, Patlikuhl**. These visits aimed to enhance students' understanding of ecological research methods, environmental monitoring, and advanced fishery techniques.

Itinerary and Activities

Day 1: November 21, 2024

The journey commenced at **3:30 AM** from the college in a Radhika coach bus. Students were picked up en route, their enthusiasm setting a positive tone for the tour.

Stop 1: Sundernagar (7:30 AM)

A short halt was made for refreshments.

Stop 2: Banala (9:45 AM)

All participants enjoyed a wholesome breakfast of tandoori parathas.

Visit to GB Pant National Institute of Himalayan Environment

Time: 11:00 AM–1:00 PM

Location: Mohal, Kullu

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Upon arrival, the group was warmly received by researchers **Ms. Nisha Thakur** and **Ms. Sumati**. After completing the necessary formalities, students were given an introductory briefing on the institute's critical role in conserving and understanding the Himalayan ecosystem.

Highlights of the Visit

1. Laboratories and Research Facilities

- **Multi-Wavelength Radiometer**

Students learned how this instrument measures solar radiation intensity and atmospheric components such as water vapor, ozone, and aerosols. The demonstration helped them understand how such data contributes to air-quality assessment.

- **Automatic Weather Station**

The functioning of the AWS was explained, showing how meteorological parameters—including temperature, humidity, wind speed, and precipitation—are continuously recorded and analyzed for climate studies.

- **ISRO-Established Laboratory**

This specialized lab introduced students to techniques used for collecting pollutant data and computing the **Air Quality Index (AQI)**. The session helped students connect theoretical environmental science concepts with real-time monitoring applications.

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➤ Multi Wavelength Radiometer



➤ Automatic Weather Station



➤ Environmental Observatory



➤ *Ginkgo biloba* (Maiden hair tree)



➤ *Plantus Oreintalis* (Chinar)



➤ *Alstonia scholaris* (Devil's tree)



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➤ *Dalbergia sisso* (Shisham) (Indian Rosewood)



Thuja occidentalis (Morpankhi)



Herbal Garden:

Medicinal plants such as *Heracleum candicans* (Padiyala), *Origanum vulgare* (Van Tulsi), *Ajuga bracteosa* (Nilkanthi), *Plantago lanceolata* (Isabgol), *Podophyllum hexandrum* (Van Kakri), and *Bergenia lingulata* (Pashanbhed) were introduced.

➤ *Heracleum candicans* (padiyala)



➤ *Origanum vulgare* (Van Tulsi)



➤ *Ajuga bracteosa* (Nilkanthi)



➤ *Plantago lanceolata* (isabgol)



➤ *Podophyllum hexandrum* (Van Kakri)



➤ *Bergenia lingulata* (Pashanbhed)



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Environmental Awareness Pledge: A scientist led the students in a pledge to sustain and protect the environment.



• **Kullu Visit (2:15 PM):** Students observed Youth Fest Group-IV events hosted at Atal Sadan.

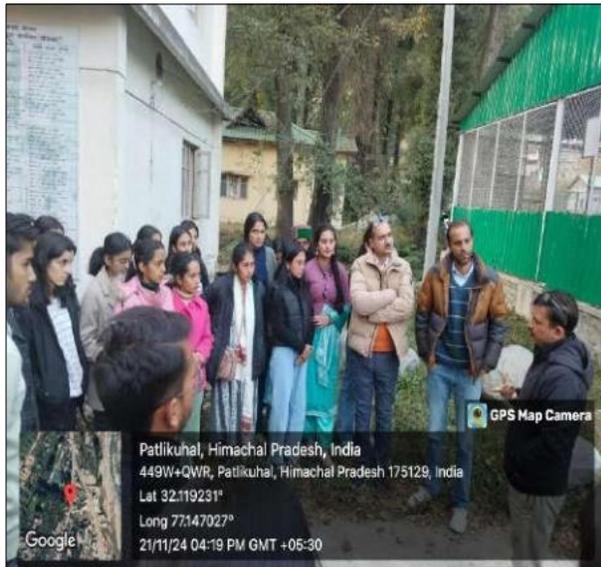


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Trout Fishery Farm, Patlikuhl (3:45 PM–5:45 PM):

Hosted by Fishery Officer Mr. Duni Chand, students were introduced to trout breeding techniques, including egg fertilization and hatchery management. A hands-on session provided practical insights into aquaculture.



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Manali Mall Road (8:00 PM):

Students explored the local market before retiring to Aleo Farm Hotel for the night.



Day 2: November 22, 2024

□Morning Excursion:

- Visited Atal Tunnel and had breakfast at Solang Nala.
- Reached Sissu at 10:30 AM and explored the scenic beauty.

Keylong Visit (1:30 PM):

Students visited the district headquarters of Lahaul and Spiti, exploring local markets, mud houses, and cultural heritage. They observed the confluence of the Chandra and Bhaga rivers at Tandi, a site of mythological significance. Interactions with locals provided a deeper understanding of regional customs and traditions.

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Return Journey:

The group departed Keylong at 3:30 PM, stopping for dinner at Banala before returning to Karsog by 1:30 AM.

Conclusion

The tour was a holistic learning experience, combining theoretical knowledge with practical exposure. Students gained insights into environmental conservation, botanical research, and advanced aquaculture techniques. The cultural immersion and interaction with experts made it a transformative event.

The successful completion of the tour highlighted the importance of field-based education in shaping future scientists and environmentalists.

Documents Related to Tour

The Principal
Government College Karsog
District Mandi (HP)-175011

Approved
Shatyal
20/11/2024

Subject: Request for Granting the Permission to Conduct Educational Tour to the Department of Botany for one day training in GB Pant National Institute of Himalayan Environment, Mohal, Kullu, Himachal Pradesh and to the Department of Zoology for one day training at the Trout-Fishery Farm, Patlikuhal, Kullu for the Students of Life Science (B Sc I, II and III) w.e.f. November 21, 2024 to November 23, 2024.

Respected Sir,

With due respect, the students of B Sc I, II and III (Medical) of your institution humbly request you that they wish to visit the GB Pant National Institute of Himalayan Environment, Mohal, Kullu, Himachal Pradesh and Trout-Fishery Farm, Patlikuhal, Kullu w.e.f. November 21, 2024 to November 23, 2024. As mentioned in our curriculum, the field visit will definitely enhance and enrich our knowledge of bio-diversity, some practical skill and to build the scientific approach among the students. Along with students, faculty of zoology (Prof. Pankaj Gupta) and Botany (Dr. Lomeshwar) will accompany the students. Since the girl students are also part of this study tour hence you are requested to depute LA Ms. Sita Devi from department of botany. She is willing to take custody of girl students during this tour. Kindly grant us the permission to visit these educational institutes. Thanking you.

Yours Sincerely

Pankaj Gupta
Pankaj Gupta
Department of Zoology

Lomeshwar
Dr. Lomeshwar
Department of Botany

Sita Devi
Ms. Sita Devi
Department of Botany

inbox Principal Govt. College Karsog, HP

Mail Contacts Calendar Tasks Briefcase Preferences My Dashboard RE: Request for

Close Reply Reply to All Forward Archive Delete Spam Actions

From: RAKESH KUMAR SINGH
To: Principal Govt. College Karsog Distt Mandi Education, HP

Dear Dr. Lomeshwar,

In reference to your trailing email, the permission for exposure visit to the Institute is hereby granted on 21/11/2024 best wishes.

—
रकेश कुमार सिंह, एफ.आई.डी.टी.ई.
RAKESH KUMAR SINGH, FIETE
जानिक-एक एवं क्षेत्रीय प्रमुख | Scientist-F & Regional Head
गोविंद बल्लभ पंत राष्ट्रीय हिमालयी पर्यावरण संस्थान
Govind Ballabh Pant National Institute of Himalayan Environment
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार)
Ministry of Environment, Forest & Climate Change, Government of India)
हिमाचल प्रदेश क्षेत्रीय केंद्र, मोहाल, कुल्लू - 175126, हिमाचल प्रदेश, भारत
Himachal Pradesh Regional Centre, Mohal, Kullu - 175126, Himachal Pradesh, India
फोन | Phone: 01902 - 260208, 260313, फैक्स | Fax: 01902 - 260207
ईमेल | E-mail: rksingh@gbpihed.nic.in, वेबसाइट | Website: <http://gbpihed.gov.in>

From: Principal Govt. College Karsog Distt Mandi Education, HP <gckarsog-hp@nic.in>
Sent: 13 November 2024 13:57
To: RAKESH KUMAR SINGH <rksingh@gbpihed.nic.in>



News Coverage:

Divya Himachal **HD**

दौरा करसोग कालेज के बीएससी लाइफ साइंस के छात्रों ने स्टडी टूर का किया आयोजन

छात्रों ने ट्राउट फिशरीज फार्म का किया दौरा

कार्यालय सहायदाता-करसोग

राजकीय महाविद्यालय करसोग में बीएससी लाइफ साइंस के विद्यार्थियों के लिए जूलाजी और बटनी विभाग के संयुक्त तत्वाधान से स्टडी टूर का आयोजन किया गया। जिसमें विद्यार्थियों को जीबी पंत एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू और हिमाचल प्रदेश सरकार मास्य विभाग के ट्राउट फिशरीज फार्म पतलीकूल कुल्लू विजिट करवाई गई। इसका मुख्य उद्देश्य विज्ञान के विद्यार्थियों में रिसर्च के प्रति उत्साह जागृत करना था। जीबीपंत हिमालयन एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू में विद्यार्थियों ने हवेल गार्डन में विभिन्न प्रकार की जड़ी बूटियों के बारे में जानकारी हासिल की। इसके अलावा उन्होंने अरबोरेटम में जाकर विभिन्न प्रकार के पशुधोषग्रम पीथों का अवलोकन किया। जो ग्लोबल वार्मिंग की वजह से लुप्त होते जा रहे हैं। इस विद्यार्थियों ने यहां पर इससे के द्वारा स्थापित की गई रिसर्च लैबोरेट्री तथा अन्य संस्थाओं का भी अवलोकन किया। बटनी प्रो. लोमेश शर्मा ने बताया कि जीबीपंत इन्स्टीट्यूट से पहले संपर्क साधा गया था। उसके बाद उनकी तरफसे परमिशन मिलने के बाद स्टडी टूर का आयोजन किया गया। इस स्टडी टूर के दौरान विद्यार्थियों ने संस्थान में हो रही रिसर्च के विषय में भी विस्तार से जाना। प्रो. पंकज गुप्ता ने बताया कि इस विजिट के माध्यम से विद्यार्थियों ने ट्राउट मछली पालन से जुड़ी बारीकियों को जाना। विद्यार्थियों ने भारत सरकार द्वारा निर्मित अटल टनल का भी दौरा किया। इस दौरान छात्रों ने लाहौल स्मॉल्ट के हेडक्वार्टर केलंग में जाने का अवसर प्राप्त हुआ। इस स्टडी टूर के सफल आयोजन के लिए जूलाजी विभाग के प्रो. पंकज गुप्ता और बटनी विभाग के प्रो. लोमेश शर्मा ने करसोग कालेज के प्राचार्य डाक्टर जेएस पटियाल का धन्यवाद किया।

करसोग : अटल टनल के दौर के दौरान मौजूद छात्र व अध्यापकगण

Shimla Kesari
Nov 27, 2024

पंजाब केसरी

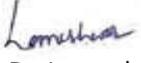
स्टडी टूर किया आयोजित

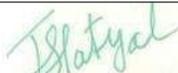
करसोग, 26 नवम्बर (दिनेश) : राजकीय महाविद्यालय करसोग में बी एससी . लाइफ साइंस के विद्यार्थियों के लिए जूलाजी और बटनी विभाग के संयुक्त तत्वाधान से स्टडी टूर का आयोजन किया गया, जिसमें विद्यार्थियों को जी. बी. पंत एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू और हिमाचल प्रदेश सरकार मास्य विभाग के ट्राउट फिशरीज फार्म पतलीकूल कुल्लू की विजिट करवाई गई। इसका मुख्य उद्देश्य विज्ञान के विद्यार्थियों में रिसर्च के प्रति उत्साह जागृत करना था। जी. बी. पंत हिमालयन एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू में विद्यार्थियों ने हवेल गार्डन में विभिन्न प्रकार की जड़ी-बूटियों के बारे में जानकारी हासिल की। प्रोफेसर पंकज गुप्ता ने बताया कि इस विजिट के माध्यम से विद्यार्थियों ने ट्राउट मछली पालन से जुड़ी बारीकियों को जाना और इसे किस प्रकार से व्यवसाय के रूप में चला जा सकता है।

करसोग : महाविद्यालय करसोग बी.एससी. लाइफ साइंस के विद्यार्थी जी.बी. पंत एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू में। (दिनेश)

करसोग कॉलेज के विद्यार्थियों के लिए स्टडी टूर का किया गया आयोजन

करसोग, (राज सोनी) : राजकीय महाविद्यालय करसोग में बीएससी लाइफ साइंस के विद्यार्थियों के लिए जूलाजी और बटनी विभाग के संयुक्त तत्वाधान से स्टडी टूर का आयोजन किया गया, जिसमें विद्यार्थियों को जीबी पंत एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू और हिमाचल प्रदेश सरकार मास्य विभाग के ट्राउट फिशरीज फार्म पतलीकूल कुल्लू की विजिट करवाई गई। इसका मुख्य उद्देश्य विज्ञान के विद्यार्थियों में रिसर्च के प्रति उत्साह जागृत करना था। जी. बी. पंत हिमालयन एनवायरमेंट इंस्टीट्यूट मोहल कुल्लू में विद्यार्थियों ने हवेल गार्डन में विभिन्न प्रकार की जड़ी बूटियों के बारे में जानकारी हासिल की। इसके अलावा उन्होंने अरबोरेटम में जाकर विभिन्न प्रकार के पशुधोषग्रम पीथों का भी अवलोकन किया जो कि ग्लोबल वार्मिंग की वजह से लुप्त होते जा रहे हैं। इस लुप्त होती प्रजातियों के बारे में विद्यार्थियों ने जाना और ग्लोबल वार्मिंग के इन पर पड़ रहे प्रभावों पर भी ज्ञान अर्जित किया। विद्यार्थियों ने चर्चा पर इससे के द्वारा स्थापित की गई रिसर्च लैबोरेट्री तथा अन्य संस्थाओं का भी अवलोकन किया। महाविद्यालय करसोग की तरफ से बटनी विभाग के प्रोफेसर लोमेश शर्मा ने बताया कि इस विजिट के लिए जी. बी. पंत इंस्टीट्यूट से पहले संपर्क साधा गया था, इसके बाद उनकी तरफ से परमिशन मिलने के बाद इस स्टडी टूर का आयोजन किया गया। इस स्टडी टूर के दौरान विद्यार्थियों ने संस्थान में होकर ही रहीं रिसर्च के विषय में भी विस्तार से जाना। इसके बाद विद्यार्थियों को हिमाचल प्रदेश सरकार मास्य विभाग द्वारा संचालित ट्राउट फिशरीज फार्म पतलीकूल में विजिट करवाई गई इस विजिट को जूलाजी विभाग के प्रोफेसर पंकज गुप्ता द्वारा संचालित कराया गया था। प्रोफेसर पंकज गुप्ता ने बताया कि इस विजिट के माध्यम से विद्यार्थियों ने ट्राउट मछली पालन से जुड़ी बारीकियों को जाना और इसे किस प्रकार से व्यवसाय के रूप में चला जा सकता है, इसे भी समझा। ट्राउट फिश फार्म की विजिट के लिए उन्होंने डिप्टी डायरेक्टर हिमाचल प्रदेश सरकार मास्य विभाग का धन्यवाद किया है, जिनके माध्यम से यह स्टडी टूर विश्व मास्य विभाग के अवसर पर संचालित हो पाई।

By:

 Dr. Lomeshwar
 Govt. College Karsog


 Principal
 Govt. College Karsog
 Mandi (H.P.)
 Government College Karsog

Government College, Karsog
District Mandi (HP)-175011
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FIELD TRIP REPORT

Geography Department, Govt. College Karsog

Date of Trip: 16 November 2024

Location: Dhamun, Mandi District, Himachal Pradesh

Objective:

The one-day field trip was organized to enhance students' understanding of geographical concepts through on-site observation of topography, vegetation, and other natural features. Approximately 30 students participated under the guidance of faculty from the Geography Department.

Activities Conducted:

- Observation of local topography including slopes, ridgelines, and surrounding landforms.
- Study of vegetation patterns and ecological characteristics of the Dhamun region.
- Discussions on geographical phenomena and real-world applications of classroom concepts.
- Interaction among students to encourage collaborative learning.

Key Learning's:

- Improved understanding of how physical features shape the local environment.
- First-hand exposure to field survey methods and observational techniques.
- Greater appreciation for the significance of fieldwork in geographical studies.

Conclusion:

The trip successfully achieved its educational objectives. Students gained practical insights into geographic concepts and enjoyed an enriching outdoor learning experience. The Geography Department expresses gratitude to the Principal for granting permission for this field visit.

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Allowed
Blatpal
13/11/2024

The Principal
Govt. College Karsog
Distt. Mandi (HP), 175011

Date: 13/11/2024

Subject: Request for permission to conduct one-day geography field trip.

Respected Sir

On behalf of the Geography Department, I am writing to request your permission for a one-day field trip to Dhamun on November 16, 2024. This trip, involving approximately 30 students, is aimed at enhancing students' understanding of geographical concepts through field observation of topography, vegetation, and other natural features.

The field trip will provide valuable opportunities for students to observe geographical phenomena in real-world settings, deepening their knowledge and appreciation of the subject.

We kindly request your approval to proceed with this educational trip. Your support will be greatly appreciated by the Geography Department.

Thank you for your consideration.

Yours Sincerely

Gaurav Thakur
13/11/2024
(GAURAV THAKUR)
Assistant Professor
Department of Geography
Govt. College Karsog



Submitted by:

Gaurav Thakur
Assistant Professor
Department of Geography
Govt. College Karsog

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Educational Excursion Tour by Department of English

Email-gckarsog-hp@nic.in Phone/Fax No.01907222116 website:www.gckarsog.edu.in

No.: EDN-GC-KSG-Est.-2/2014- ३७७
Office of the Principal,
Govt. College Karsog,
Distt. Mandi, H.P.

Dated : Karsog, the 04th October, 2024.

OFFICE ORDER

The Following Assistant Professors of this college are hereby deputed to accompany the Post Graduate students (English) on an excursion tour to Shikari Devi on 05th October, 2024, without any financial liability to this institution.

Sr. No.	Name of Assistant Professor	Designation
1	Dr. Kulbhushan Sharma	Assistant Professor
2	Ms. Anupama Sharma	Assistant Professor
3	Ms. Sunita Kumari	Assistant Professor
4	Ms. Pushpa Devi	Assistant Professor

S.L.
Principal
Govt. College Karsog,
Distt. Mandi, H.P.

Dated: 04-10-2024

Endst. No. Even
Copy to :-
✓ (1) Individuals concerned for further compliance.
(2) Guard file.

P.P. Patyal
Principal
Govt. College Karsog,
Distt. Mandi, H.P.
PRINCIPAL
GOVT. COLLEGE
KARSOG DISTT. MANDI (HP).

A Report

The Department of English, Government College Karsog, organised an educational excursion tour for 30 post-graduate students in October 05, 2024 with the objective of promoting experiential learning beyond the classroom. The tour was thoughtfully planned to combine academic enrichment with personal growth and environmental awareness. It aimed to provide students with an opportunity to learn in close proximity with nature, encouraging them to understand the importance of sustainable living while deepening their literary sensibilities. The destination was carefully selected for its serene natural surroundings, lush greenery, and peaceful

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atmosphere, enabling students to temporarily detach from urban routines and immerse themselves in the simplicity of natural life.

During the excursion, students stayed in an environment that promoted eco-friendly living and minimal use of modern conveniences. They actively participated in nature walks, forest trails, and early morning sessions that allowed them to observe the beauty of flora and fauna firsthand. These activities helped them develop patience, discipline, and a deeper appreciation for the ecological balance that sustains life. Living close to nature also encouraged them to adopt habits of simplicity, shared responsibility, and cooperation, fostering a sense of community among the group. The experience proved transformative as students learned to adjust to basic facilities and appreciate the richness of a life lived in harmony with the natural world.

As students of English literature, the tour also provided a unique academic dimension. Surrounded by scenic landscapes, they engaged in poetry readings, reflective discussions, and creative writing exercises inspired by nature. The environment brought to life the works of Romantic poets such as William Wordsworth and S.T. Coleridge, enabling students to better understand the profound relationship between literature and the natural world. Reflection journals and group discussions allowed them to articulate their thoughts and connect literary themes with their lived experiences during the tour.

The excursion also strengthened bonds among students through cultural activities, group interactions, and collaborative tasks. Evening gatherings included storytelling, recitations, and informal discussions, which enhanced confidence, communication skills, and teamwork. The tour was conducted under the able guidance and supervision of Dr. Kulbhushan Sharma, Ms. Anupama Sharma, Ms. Sunita Thakur, faculty members of the Department of English, Government College Karsog and Ms. Pushpa Devi also accompanied them. Their leadership, academic guidance, and careful coordination ensured that the excursion was both safe and intellectually enriching. She encouraged students to observe, reflect, and engage meaningfully with their surroundings, making the experience both educational and memorable.

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Overall, the excursion tour organised by the Department of English, Government College Karsog, was a resounding success. It provided post-graduate students with invaluable exposure to experiential learning, nurtured environmental consciousness, and strengthened their literary understanding. Most importantly, it taught them the art of living in close proximity with nature, fostering personal growth, mutual respect, and a deeper appreciation for the world around them. Such initiatives significantly contribute to holistic education and remain an essential part of academic development.

Some glimpses:



Dr. Kulbhushan Sharma
HoD, Department of English
Government College Karsog
District Mandi (HP)



INDUSTRIAL VISIT TO CEDARWOOD OIL FACTORY FOR STUDENTS OF G.C.

KARSOG (Under R&R Unit)

REPORT

Date: 24th August 2024

Attendees: Rover and Ranger Unit, G.C Karsog (18 Students, accompanied by one faculty escort at Sanarali, 8 KM away from G.C. Karsog)

Objective: To acquire comprehensive knowledge regarding the industrial extraction of cedarwood oil, the technical and managerial skills involved, and the marketing strategies employed for domestic and international distribution. Overall, it imparted the skill to study the industrial process of essential oil extraction and understand the skills required for production and marketing.

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The visit commenced with a safety briefing, followed by a tour of the raw material yard. Students observed that the factory primarily utilizes cedarwood waste, like roots and stumps, which promotes sustainability. The extraction process relies on **Steam Distillation**. Guides explained how high-pressure steam passes through wood chips in sealed retorts, vaporizing the oil. The vapor is then condensed and separated in a Florentine flask, yielding pure cedarwood oil.

The Rover and Ranger Unit undertook an industrial visit to a leading cedarwood oil manufacturing facility to bridge the gap between theoretical knowledge and practical industrial application. The factory, situated in an agro-processing zone, specializes in value-added wood derivatives and essential oils. The visit was structured to include a guided plant tour, technical demonstrations, and an interactive session with the quality control and marketing teams.

RAW MATERIAL HANDLING AND PRE-PROCESSING

The tour commenced at the raw material yard, where large stacks of cedarwood roots and stumps were stored. The factory manager explained that the unit exclusively utilizes forestry waste, thereby promoting circular economy principles. Students observed mechanical chippers reducing wood logs into small chips to increase surface area for efficient oil extraction. Skills observed here included inventory management, moisture content assessment, and operating heavy-duty size-reduction machinery.

EXTRACTION PROCESS – STEAM DISTILLATION

The core of the visit was the steam distillation unit. Students witnessed how high-pressure steam, generated in a dedicated boiler, was passed through mild steel retorts loaded with cedarwood chips. The heat causes the oil glands within the wood to rupture, releasing volatile compounds. The steam-oil mixture travels through insulated pipes into a condensation unit, where cold water circulates to liquefy the vapours. The liquid then enters a Florentine flask, where gravity separates cedarwood oil (lighter) from water (hydrosol). Students learned that this process takes 24–36 hours per batch and yields approximately 1.5–2% oil by weight.

TECHNICAL AND OPERATIONAL SKILLS

Several skill sets were identified during the plant walkthrough:

1. **Process Engineering Skills:** Operators monitor pressure (2–3 kg/cm²), temperature (100–120°C), and flow rates. Knowledge of thermodynamics and unit operations is essential.
2. **Mechanical Skills:** Fitters demonstrated preventive maintenance of steam valves, pumps, and conveyor belts. Troubleshooting unexpected pressure drops required practical experience.
3. **Quality Control Skills:** In the in-house laboratory, technicians performed gas chromatography to verify the purity of cedarwood oil and detect adulterants. Parameters such as specific gravity, refractive index, and alpha-cedrene content were tested.

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4. **Soft Skills:** Supervisors coordinated shift schedules and maintained production logs. Communication and teamwork were emphasized as critical for safety and efficiency.

POST-EXTRACTION AND FINISHING

Post-distillation, the crude oil was transferred to stainless steel settling tanks for 48 hours to remove residual moisture and fine particles. Students observed filtration through cloth filters and final packaging in 180-kg MS drums lined with food-grade coating. A separate clean room handled small-volume bottling for niche cosmetic clients.

MARKETING AND COMMERCIAL ASPECTS

The visit concluded with a presentation by the export manager. Cedarwood oil is primarily used as a fixative in perfumery and in soaps, aromatherapy, and pharmaceutical formulations. The factory exports 70% of its output to Europe and the Middle East. Marketing strategies include:

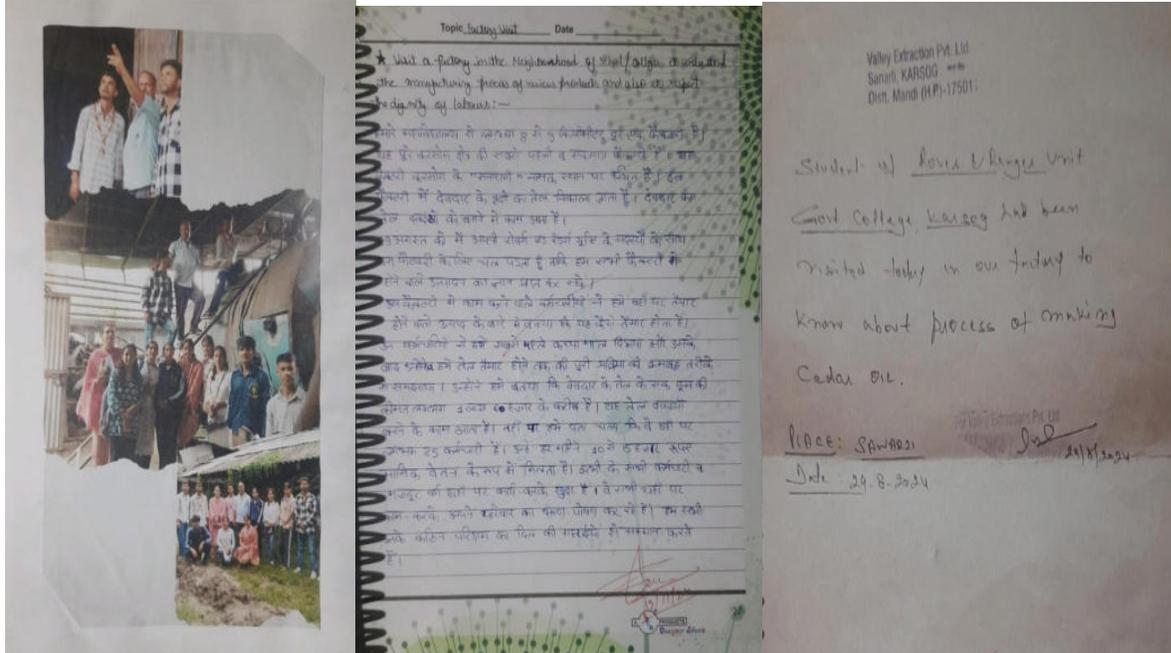
- Obtaining Certificates of Analysis and Material Safety Data Sheets per client requirements.
- Participating in international trade fairs and B2B platforms.
- Emphasizing sustainability certifications to attract eco-conscious buyers.
- Pricing strategy based on global essential oil market indices.

LEARNING OUTCOMES

The visit was highly educational and inspiring. Students gained end-to-end exposure from raw forestry residue to high-value exportable essential oil. The visit bridged textbook chemistry with real-world application. Students gained holistic knowledge—from raw material handling and high-tech distillation to global supply chain management. The integration of chemistry, engineering, environmental stewardship, and global commerce was clearly demonstrated. The experience motivated several students to consider careers in agro-processing, quality assurance, and industrial marketing. The Rover and Ranger Unit extend sincere gratitude to the factory management for their hospitality and knowledge sharing as well as to the chair for granting permission to execute this visit.

Pictures of the visit and a certificate from the factory authority

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(Prof. Pankaj Gupta)
Unit In-Charge-R&R

(Dr. J.S. Patyal)
Principal, G.C Karsog