Lac Characterization and Processing

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Lac Characterization and Processing	**2**	**NIL**	**NIL**	**2**	**Class XII**	**NIL**

Learning Objectives

This course's Learning Objectives are as follows:

- To provide first-hand laboratory training in the various steps involved lac processing.
- To gain laboratory experience in characterization of various types of lac.
- To develop skills in isolating lac wax and lac dye.
- To acquire practical laboratory experience characterising these substances.
- To gain the knowledge of industrial applications lac.
- To give students hands-on experience in the lab isolating a high-value product, aleuritic acid.

Learning Outcomes

By the end of this course, students will

- Be familiar with various steps of lac processing.
- Learn how to characterise different kinds of lac in the lab.
- Be trained in separation of lac wax and lac dye.
- Gain hands-on experience in characterising these compounds in the lab.
- Have real-world laboratory experience in separating a valuable compound (aleuritic acid).

Skill development and job opportunities

Students who successfully complete this course may be qualified for the following positions:

- Students can enhance their entrepreneurial skills by starting their own scientific lac processing unit and lac export unit.
- Quality control supervisors, production supervisors, etc. are only few of the jobs available in the lac processing business.
- Students can collaborate with non-governmental organisations (NGOs) and development agencies (DAs) to disseminate information on sustainable lac farming practises and offer assistance to local lac farmers.

- Employment opportunities exist in government entities that promote and regulate the lac sector.

SYLLABUS

Practical **60 hours**

1. Collection of lac stick from the host plants and scrapping of stick lac
2. Primary processing of stick lac to seed lac
3. Processing of stick lac to seed lac
4. Characterization of the seed lac
5. Processing of seed lac to button lac/ shellac
6. Characterization of button lac /shellac
7. Extraction and purification of lac dye
8. Estimation of lac dye content and its characterization
9. Extraction of lac wax and its characterization
10. Isolation of Aleuritic acid from lac, value added lac product.
11. Project: Applications, Industries, Export and Marketing strategies of lac
12. Industry/ Institute Visit and prepare a report.

Recommended Books:

1. Bangali babu and D.N. Goswami (2010) Processing, chemistry and applications of lac. ICAR publication. ISBN 978-81-7164-065-2.
2. Natural material and products from insects: Chemistry and applications (2020) ed. Dhiraj Kumar and Mohammad Shahid. Springer. ISBN 978-3-030-36610-0
3. Y. Sankaranarayanan (1968) Shellac: Modifications and Compositions. Indian Lac Research Institute, Namkum, Rachi, India.

Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.