

LAC CULTURE

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Lac culture is the scientific management of the lac insects to obtain a high amount of quality lac. This involves selection and maintenance of host plants, inoculation of host plants with healthy lac insects, collection and processing of lac and protection against enemies.

Lac is the resinous secretion of lac insects. Two species of lac insects *Tachardia lacca* and *T. chinensis* are common, of which the former one is predominant in India. India is the highest lac producing country after Thailand.

Systematic Position. - A number of species of lac insects are known, of which *Laccifer lacca* is by far the most important and produces the bulk of lac. It belongs to

Phylum - Arthropoda
class - Insecta
order - Hemiptera
Superfamily - Coccoidea
family - Lacciferidae
Genus - *Laccifer*
Species - *Lacca*

The insect lives as a parasite feeding on sap of certain trees and shrubs. The important trees on which the lac insect breed and thrive well are -

- Kutum (*Schleichera trijuga*)
- Palas (*Butea frondosa*)
- Ber (*Liszyphus jujuba*)
- Barbul - (*Acacia arabica*)
- Khair (*Acacia catechu*)
- Arhar (*Cajanus meliurus*)

Inoculation - 20 to 30 cm long twigs of host plant with old lac crusts are cut and tied with branches of new plants for propagation. The crust contains eggs laid by female insects.

Types of lac - 1. Kusumi lac - It grows on Kukum trees. Inoculation is done in January, February and harvested in June, July.

2. Rangseai lac - It grows on trees other than Kukum. Inoculated in October, November and harvested in next May, June.

Life cycle of Lac insects - A resinous exudate comes out of the insect body and forms a crust around it, which gets attached to the host plant. Gradually a thick crust of the resinous substance or lac surrounds the twig.

1. Following inoculation, the larvae hatch out of the eggs present in old crust, they are nymphs and come out of the crust. This is called swarming.
2. The abandoned crust is called Phunki.
3. The Phunki is removed within three weeks of inoculation.
4. The nymphs are boat shaped, reddish in colour and possess one pair of antennae, three pairs of thoracic walking legs and a pair of caudal setae.
5. Some of the nymphs are males - both winged and wingless and others are females.
6. The nymphs move to new branches of the host plant, with the help of maxillae and mandibles modified for sucking, they suck cell sap from the branches of the host plant to thrive. The nymph settle on the branch and liberate the exudate.

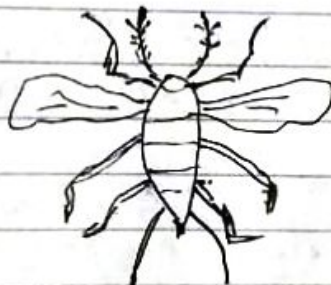
7. Most of the body structures are lost and the nymphs moult several times.
8. The rejected skin and the exudate form a crust around it containing a pair of branchial pores and a large anal tubercle opening.
9. An operculum is present at tubercle opening. The male comes out removing the operculum after three months.
10. The male copulates with female. The males are devoid of mouth parts and die soon after mating. The female lays eggs in the crust.



Lae incubation around host plant



Nymph



Winged male



Wingless male



Female in incubation



Female exposed.

Life cycle of lae insect
Pachardina sp.

Harvesting and extraction of lac -

1. Twigs with thick crust around it are cut and removed from sites.
2. The incrustations are scraped out from the twigs. This is granular lac.
3. The granular lac is washed thoroughly with water and a red dye is obtained. Drying and bleaching of washed lac are done by exposure to sunlight.
4. The granules are melted in pot over charcoal fire.
5. The lac melts and comes out of the crust. Thin sheets are prepared from molten lac. The sheets are dried and broken into pieces and marketed as flakes.

Uses of Lac → lac is used in the manufacturing of toys, ornaments, electrical insulating materials, varnishes, polishes, lithographic inks, shoe polished, sealing wax etc.

Enemies of lac - Some chalcid and lepidopteran insects lay eggs inside the nests. The ~~insects~~ nymphs of lac insects are eaten up by their larvae.

proper selection of leaf lac
Killing the predator eggs in harvested lac.
and use of insecticides greatly minimize damage to the crop.

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