Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 02, Issue: 06 (NOV-DEC, 2022)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Lac Culture in India

(*Rebala Abhi Sri Vardhan Reddy, Sai Prasuna, Challa Venkata Surya and Ganesh)
School of Agriculture, Lovely Professional University, Phagwara-144401, Punjab, India
*Corresponding Author's email: rebala.abhi@gmail.com

Abstract
In India along with the cultivation of crops, insects are also cultivates. Bee Keeping, silkworm, rearing and lac insects are cultivated under the cultivation of these insects.With little technical knowledge and less time we can easily cultivate the lac insect. Cultivation of lac pest farming in large scale called lac cultivation.

The term lac seems to have been derived from the Sanskrit word ''Laksha'' meaning a hundred thousand (Ogle, 2006) and is suggestive of the large number of insects involved in its production. The description of the lac insect and its host plant– Butea monosperma (Lakshataru) is recorded in the Atharva Veda. It is also mentioned in the Mahabharata that Kauravas built the highly inflammable lakhshagriha or Jadugriha (Lac house) with a motive of physically eliminating Pandavas by setting the Lac palace on fire (Chattopadhyay, 2011)

Introduction
Status of Raw Lac Production: India is the leading lac producer in the world in terms of production of raw lac,with annual production of over 20,000tons.80%of the worlds total production is in India,and 75% of it is exported to over a hundred countries,mainly in processed and semi-processed forms.Thailand produce second after India along with these lac is also produced in Indonesia, parts of China,Myanmar,the Philippines,Vietnam and Combodia etc. In India lac production takes place in mainly restricted to the Chhota Nagpur region of Jharkhand state, Chhattisgarh state, MP, WestBengal, Orissa, UP, Maharashtra Among the lac growing states, Jharkhand state ranks 1st followed by Chhattisgarh, MP, Maharashtra and Odisha and the contribution of these five states in national lac production is about53%,17%,12% 8%,and 3% .These 5 states produce around 93% of national lac production.

Biology of Insect in Lac Cultivation: Lac is a natural resin which is secreted by the female Indian lac insect K.Lacca(Kerr). It is belongs to the Kerridae family, consists of nine genera, the number of species reported vary from 87-100 species(Sharma and Ramani),Two generas are found in India, while genus Kerria is the important and widely exploited insect for lac cultivation in India. Lac insect has softbody round and tiny creature, which complete its life cycle viz .,egg, larva, pupa and adult on host plant with in 6months.3-4 days the adult male lives very short duration and female lives longer. The process of lifecycle insect suck the sap juice from tree branches through its mouth and female insect secrete lac around branch of host plant thus it play majore in lac production.

Types of Raw Lac: It is represented by two strains 1) Rangeeni strain and 2) Kusmi strain. Rangeeni strain thrives on host than Kusum, while Kusum strain grown on Kusum. In case of Rangeeni two crops are required such as Katki and Baishakhi ,in case of kusmi strain two crops are Jethwi and Aghani are harvested

Scientific method of lac cultivation

For the cultivation of lac two things are required such as it requires sutable host plant in which lac insect thrives for healthy brood in time. Mainly 6 stages 1)selection of suitable host plants,2)Inoculation of brood lac ,3)Removal of brood lac sticks,4)Natural enemies of lac insect ,5)Harvesting of lac sticks and 6)Scraping of raw lac from twings.

Selection of suitable host site for lac cultivation: Sites for lac host plantation were open area do not have fire susceptibility,freee air circulation around host .Selection of lac should have features like 1)Fairly fast-growing,2)Lower sap density and 3)Well adapted to pollarding.In world 113 varities of host plants and 87 species of lac was found worldwide in which two genera and 23 species are found in India very common species are Dhak(Butea monosperma),Ber(Ziziphus mauritiana)and Kusum(Schleichera oleosa)in India;Rain tree (Albizia saman)and Pigeon Pea (Cajanus cajan) and Hibiscus species in some parts of China and Nepalensis species in Myanmar.

Pruning of host trees: To get soft and juicy twigs in the nutrious tree, light pruning and pruning is necessary at certain time so that lac can reared easily. Pruning in safflowers tree done in jan-feb and June-july.pruning of palash trees should done before the new coplanes arrive in the fall.

Inoculation of brood lac: Brood lac is mature lac in which young ones are ready to come out. In order to transit the lacquer insect to the nutritious tree, a bundle of 6-9 inch long and 3-4stalks of lacquer are made ,which is placed at several parts in tree. This include young lac larvae to come out of their mother cell and settle on host plant.this period will complete in 2-3 weeks.

Removal of broodlac sticks: The brood lac sticks are used after the baby moth released from seed lakhs, the lakhs of stalks are called “phunki”in emergency of lac larvae from brood lac ceases after three weeks.this is done to prevent from predators and parasitoids to avoid wastage of lac after drying of phunki and prevent falling on ground.to stop loss so we climb trees by the help of polemounted phunki hook

Natural enemies of lac insect: Lac insect attack by two natural enemies like 1) parasites and 2) predators.

Parasites: The organisms which lives on other organisms for nutrition ,growth and development. In lac insect small tiny winged parasite such as Tachardiaephagus tachardiae and Tetrastichus purpureus are most important parasites they lay their eggs in lac cells and the larvae will feed on lac cell on other side predators directly consume their host it can damage upto 30-35%cells of a crop Eublemma amabilis and pseudohypatopa pulvera are most pets of lac insect.

Harvesting of lac crop: Harvesting is the process in which lac collected from host trees.two types are used most of the regions such as “ Ari lac “ . In India ,ari lac gives better production it is recommended in case of rangeeni only and in mature lac collected after swarming obtained lac called mature lac .In summer (Baisakhi) and rain (Katki) crop of Rangini lac,after 8-4 months of transmission respectively summer (jethvi)and witer (Aghani0crop of Kusmi are ready in June-july and jan-feb.yield obtained india are 6-10kg from kusum ,1.5-6kg for ber,1-4kg for dhak.The insect life cycle can produce two stick lac yeild per year so leave the 6months for host tree recover.

Scrapping of raw lac from twigs: Scrapping is process in which incrustation lac resin removed from lac host stick. After harvesting for the longer time storage along with mature immature lac also scraped this proceses done with the help of knife or crusher for different applications in the processing area.

Composition and their properties: The level of various constituents of lac is: resin 68 to 90%, dye 2 to 10%, wax 5 to 6%, mineral substances 3 to 7%, albuminous substances 5 to 10%, and water 2 to 3%. Lac called as multipurpose resin due to possess so many desirable properties. The important properties of lac are such as i) it is soluble in alcohol. ii) It has adhesive nature. iii) Resistance to water. iv) Possess high scratches hardness. v) It consist capacity of forming a uniform durable film. vi) it allows quick rubbing with sandpaper without gumming or slicking

Lac and its forms: Lac obtained in different forms such as stick lac ,seed lac,shellac,button lac ,garnet lac,and bleaches lac .

Uses of lac

Lac is used in wide varities of application in manufacturing of lac bangles,glazed paper,printingand waterproofing inks,dentalplates,optical frames; also used for fininshing different commercial products such as playing cards, oil cloth; and also used for preserving archaeological and zoological specimen; in the electrical industry used as coating of insulator, coating of spark plugs, cement of sockets of electrical lamp, anti-tracking insulating; in Pharmaceutical industry used in coating of tablets, micro-encapsulation of vitamins and coating of medicines; also used in automobile paint cosmetic and leather industry. Lac earlier about half of the total output was consumed in the gramophone industry. It has long been in use both for decorative and insulating varnishes, usually used as a first coating on wood to fill the pores. Bleached lac widely used in the coating of confectioneries and medicinal tablets. Lac dye widely used in India as a dye for woof and silk and skin cosmetic. Lac wax has widely used in the manufacturing of lipstick and shoe polish.

Conclusion

This is to learn about importance of lac cultivation. Which include rearing of insect and its host plants, pest managments,cultivation and harvesting of lac .This helps to get usage of lac in many products.the life stages of lac insect during lac cultivation can also understand this will also provide opportunity in the regions to increase the plant population for lac host enhace as well as it is productivity in the country. Economically lac culture is a strong option for many villagersincluding tribals are getting surviving on this insect .The host plants should be maintain properly so the lac production will be more. Lac cultivation is a need of day to prevent environmental biodiversity

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