

Lac: It's Application in Different Industries

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SUMMARY

Lac is the unique gift of the nature. It is the resinous product obtained from the tiny lac insect on some trees. It is considered as minor forest produce and an important source of income for the people in the forest. Due to its non-toxic nature, adhesive property and wonderful characteristic, shell lac, the product of the commerce is used in a wide range. It is used in many industries like electrical, varnish and printing industries, adhesive industry, Fertilizers and pesticides industries, cosmetics, Pharmaceutical industries etc. It is also extensively used as an important ingredient of several Ayurvedic and Unani formulation. It not only provides the livelihood to many people leaving in forest but also fetches foreign exchange through export.

INTRODUCTION

Among Natures gift to the mankind, Lac is one among them. Lac is the red coloured natural resinous exudation from the body of female Lac insect *Laccifera lacca* (Keer) found throughout the India (Siddiqui, 2004). It is collected as the minor forest produce and cultivated since time immemorial. It is biodegradable and nontoxic to health. Lac is the only known commercial resin which is originated from animal. It is categorized generally as a "Non-timber forest produces" (Jaiswal *et al.*, 2016). With increase in the environmental awareness, in present ages the importance of lac has got a special relevance (Lalita, 2020). Lac cultivation is one of the important sources of income for the tribal communities when there is a crop failure due to erratic change in the climate condition (Alkesh, 2016). Lac yields much kind of products. Application of the products has been changing from time to time.



Matured Lac on stem



Shell Lac- Commercial product

Application of Lac products in different industries:

Lac is used for numerous purposes in different industries in the form of solution in solvents or after mixing with other substance.

Varnish and printing Industry:

It is used as furniture and floor polish, pattern paint on woods, used as water and heat proof varnish, shellac red oxide primer, sealers due to its resistance to abrasion property. It is used as fast drying agent for printing ink.

Electrical Industry:

It is used as air drying and baking type insulating varnish, cement for various electrical sockets, PCB's protective coating, anti-tracking insulating varnish, various laminated sheets and tubes due to its very high dielectric strength, adhesion and anti-tracking property.

Adhesive Industry:

Due to its good adhesive and binding nature it is used as sealing wax, hot melt adhesive, gasket cement, optical cement, for making grinding wheel, coating of leather for adhering metal and plastic foils.

Fertilizers and pesticides Industry:

Lac is used in the encapsulation of fertilizers and pesticides for their slow release. It helps in synthesis of perfumes and bio active compounds likes insect sex pheromones and Plant growth regulators.

Pharmaceutical Industry:

It is extensively used in the pharmaceutical industry for micro encapsulation of vitamins, for coating of the tablets and medicines for slow release in the body. It is also used as decoction or as refined fraction in Ayurvedic and Unani for preparation of some formulations for diseases of bile, osteitis, obesity, dropsy, anti inflammatory agent and as diuretic.

Food Industry:

In food industry for increasing the shelf life it is used in coating the fruits, coffee beans, chocolates due to its non toxic nature and adhesive property. It is also used for making the non-toxic ink for marking the food stuff.

Cosmetics Industry:

It is used in hair sprays, lacquers, lipsticks, eye shadows, nail polish mascara etc due to its non toxic and good binding property.

Other uses:

Lac is used by the gold smith for filling the ornaments, for fixing the gold sheet on the wooden logs. It is used in polishing stones, sharpening stones.



Lac used in paintings



Lac used as sealers



Lac used in painting toys



Chocolates coated with Lac



Lac used as artificial nails

Fig: Images of Lac used in different industries

CONCLUSION

Lac is one of the important export commodities of our country. Besides its non-toxic nature and good adhesive property, the growth of lac, its industries and its uses would sustain the economic development of our country, especially the tribal and weaker sections living in forests. It also fetches foreign exchange through export.

REFERENCES

- Alkesh, I.S. (2016). Importance of lac culture on socio-economic and biodiversity conservation fronts. *International journal of advanced research*, **4**(9): 1708-1711.
- Jaiswal, A.K., Sharma, K.K., Kumar, K.K. (2006). Importance of lac in the socio-economic life of tribals in Ranchi district (Jharkhand). *New Agriculturist*, **17**(1, 2): 133-137.
- Lalita. (2020). Lac production technology in India and its role in Indian economy. *Journal of Entomology and Zoology Studies*. **8**(4): 1457-1463.
- Siddiqui, S.A. (2004). Lac- The versatile natural resin. *Natural product radiance*, **3**(5): 332-337.