

Processing of Lac: Indian Scenario

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Abstract

Lac is one of the most valuable materials gifted by nature which is used in different industries and serves the mankind to a great extent. But sticklac, after collection from specific lac host trees, cannot be used in industries directly. Therefore, a long process is needed to bring it worthy of utilisation in industries and other purposes. In this paper, it is endeavoured to highlight the different methods of lac processing in India with a picture of lac processing units to realise the present scenario.

Key words: *Sticklac, Seedlac, Shellac, Button lac, Processing.*

Introduction

India is the largest producer of lac in the world and exports huge quantity of lac to different foreign countries like Germany, U.S.A, U.K. etc after fulfillment of its own demand and earns vast amount of foreign money. But sticklac, collected from lac host trees, is not directly exported and through a long process, it is converted into seedlac, shellac, button lac etc and becomes worthy of utilisation in different industries.

Objectives of the Study

1. To give an idea about various methods of lac processing in India.
2. To highlight the current scenario of lac processing in India.
3. To find out associated hindrances faced by lac processing centres in India.
4. To provide some suggestions for the betterment of lac processing in India.

Methodology used for the Study

This study is mainly based on secondary data which are available in Books, Journals, Articles, Reports, Lac Statistics and various Web Resources. The data are presented using tables.

Methods of Lac Processing in India

1. **Procurement, Storing & Refinement of Sticklac:** The sticklac is first procured from Rangeeni and Kusmi strains. Then it is spread on cemented floor and to rake it from time to time to make it dry and is stored in bags in a cool dry place. After that, the

refinement of sticklac is accomplished in cottage scale or semi mechanized factories to remove impurities like sand, insect debris, woody matters etc.

2. **Conversion into Seedlac:** Sticklac is converted into seedlac after removing impurities again through crushing and washing. Washing is carried out through manual process or mechanical process. In manual process, lac is washed with the help of large vats with full of water. In mechanical process, washing of lac is done by using horizontal barrel fitted with an axle with some fixed blades running with power.
3. **Manufacture of Shellac:** Seedlac, after removing of impurities again, is converted into shellac through two methods- manufacture of handmade shellac and manufacture of machine made of shellac. In case of manufacture of handmade shellac, seedlac after keeping in a narrow cloth bag is melted with the help of burning charcoaled oven and the impurities are left inside the bag. Thus the handmade shellac is obtained. In the process of manufacture of machine made shellac, two different methods are used which are heat process and solvent process. In heat process, seedlac is melted by steam heat and as a result, pure lac is obtained, then the molten lac is stretched by rollers and continuous sheets are made which are broken into pieces to form machine made shellac. In solvent process, lac is dissolved in a soluble solvent to separate insolvent impurities. After filtering and boiling the solution, very high grade shellac is obtained.
4. In the lac processing methods, some by-products such as molamma, kiri, passewa, shellac wax, lac dye etc and some derivatives like aleuritic acid, jalaric acid, shellolic acid etc are obtained.
5. **Storing and Packing:** Lastly, the products are stored on a well ventilated cemented & cool floor of cool shaded godown or air conditioned warehouse. For despatching from the factory, products are packed either in cloth-lined gunny bags for ordinary grades or cloth-lined boxes for superior grades. Thus, through a long heterogeneous process, sticklac is converted at first into seedlac which is again converted into shellac, button lac, de-waxed and de-colourised shellac etc prepared for proper utilisation in different industries with some other by-products, derivatives etc which are also used in various services of mankind.

Lac Processing Scenario in India

In India, major lac processing centres are located in Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra and West Bengal.

Table: 1 shows that during 2015-16, total lac processing units in India were 183, among which West Bengal held the supreme position containing 114 units followed by Chhattisgarh 31, Jharkhand 16, Madhya Pradesh & Maharashtra 6 each and others jointly 10. Among the

districts, Purulia (West Bengal) occupied top position with 93 centres, followed by Dhamtari (Chhattisgarh) 15, Ranchi- Khunti (Jharkhand) 10 and so on. The table also expresses that all most all types of products like seedlac shellac, button lac bleached lac, aluritic acid, black shellac, gasket shellac, de-waxed and de- coloured lac, lac dye, varnish etc were made in these units.

Table: 1 Major Lac Processing Centres in India during 2015-16

States	Districts /Centres	No. of Processing Units	Products Made
Chhattisgarh	Dhamtari	15	Seedlac, Button lac, Bleached lac, Aleuriticacid
	Janjgir-Champa	5	Seedlac, Shellac, Bleached lac, DewaxedShellac, Lac dye
	Kanker	2	Seedlac
	Korba	7	Seedlac, Shellac, Bleached lac, Button lac
	Rajnandgaon	1	Seedlac, Shellac
	Raipur	1	Bleached lac, Aleuriticacid
Jharkhand	Daltonganj	2	Seedlac
	Ranchi and Khunti	10	Seedlac, Button lac, Shellac, Lac dye, Bleached lac
	Simdega	2	Seedlac
	Saraikela-Kharsawan	1	Bleached lac
	West Singhbhum	1	Black Shellac
Madhya Pradesh	Indore	1	Seedlac, Bleached lac, Varnish
	Balaghat	2	Seedlac
	Seoni	2	Seedlac
	Hosangabad	1	Seedlac
Maharashtra	Gondia	6	Seedlac, Shellac, Gasket Shellac Compound, Bleachedlac
West Bengal	Purulia	93	Seedlac, Shellac, Button lac, Bleached lac, Aleuritic acid, Lac wax, De-waxed De-colourised lac
	North 24 Paragana	1	Aleuritic acid
	Others	20	Lac based value addedproducts
Others		10	Lac based value addedproducts
Total		183	

Source: Lac, Plant Resin and Gums Statistics 2016: At a Glance, IINRG

Table: 2 reveals that out of total 21571 tons sticklac processed in all over India during 2015-16, West Bengal occupied top most position by processing 8758 tons followed by Jharkhand 6455 tons, Chhattisgarh 3778 tons, Maharashtra 1910 tons, Madhya Pradesh 170 tons. The other states (Odisha, Karnataka, Uttar Pradesh, Delhi, Tamil Nadu etc) jointly processed 500 tons. In connection with districts-wise processing, we can find that Purulia district in West Bengal ranked 1st by processing 7003 tons followed by Khunti in Jharkhand 4443 tons, Dhamtari in Chhattisgarh 2091 tons, Gondia in Maharashtra 1910 tons, and so on. Regarding percentage change over the last year 2014-15, it is observed a hike of 11.8% in processing though there is a fall in some centres. The table also depicts that in regard to lac processing

in India, around 88% were shared by West Bengal, Jharkhand and Chhattisgarh jointly with 41%, 30% and 18% respectively followed by Maharashtra with 9% and others with 3%.

Table: 2 Quantity of Sticklac Processed in India during 2015-16

States	Districts/ Centres	Quantity Processed (tons)	% change over last year
Chhattisgarh	Dhamtari	2091	-0.4
	Janjgir-Champa	416	-63.8
	Kanker	250	127.3
	Korba	901	-32.3
	Rajnandgaon	120	50.0
	Sub total	3778	-20.8
Jharkhand	Daltonganj	60	200.0
	Ranchi	1551	84.6
	Khunti	4443	26.9
	Saraikela-Kharsawan	50	66.7
	Simdega	301	-39.8
	West Singhbhum	50	66.7
Sub total	6455	31.2	
Maharashtra	Gondia	1910	-2.1
Madhya Pradesh	Indore	20	-50.0
	Balaghat	40	33.3
	Seoni	100	100.0
	Hoshangabad	10	-66.7
	Sub total	170	13.3
West Bengal	Purulia	7003	6.2
	North 24 Paragana	100	150.0
	Others	1655	131.1
	Sub total	8758	19.3
Others	Odisha, Karnataka, Uttar Pradesh, Delhi, Tamil Nadu, etc	500	214.5
	Grand Total	21571	11.8

Source: Lac, Plant Resin and Gums Statistics 2016: At a Glance, IINRG

Table: 3 Lac Processing in India during 2010-11 to 2015-16

Year	Quantity (tons)
2010-11	13600
2011-12	15892
2012-13	14594
2013-14	22149
2014-15	19292
2015-16	21571

Source: Lac, Plant Resin and Gums Statistics 2016: At a Glance, IINRG

Table: 3 shows that the quantity of lac processed 13600 tons in 2010-11 has increased to 21571 tons in 2015-16. An upward trend in lac processing is noticed here except in 2012-13 and 2014-15.

Table: 4 Lac Processing Centres in the Major Lac Producing Districts of India

Classifications (Qty. in tons)	No. of Districts	No. of Processing Centres	Name of the Districts
>1000	06	20	Gumla, Khunti, Ranchi & Simdega (Jharkhand); Seoni (Madhya Pradesh) and Gondia (Maharashtra)
500-1000	04	12	West Singhbhum (Jharkhand); Balaghat (Madhya Pradesh); Korba and Kanker (Chhattisgarh)
100-500	17	100	Palamau (Jharkhand); Bastar, Janjgir-Champa, Bilaspur, Raipur and Rajnandgaon (Chhattisgarh); Purulia, Midnapur (West Bengal); Nabarangpur, Sundergarh (Odisha), Mandla (Madhya Pradesh); Garhchiroli and Chandrapur (Maharashtra) and Meghalaya (Garo hills)
1-100	22	16	Balasore, Keonjhar, Koraput and Mayurbhanj (Odisha); Bhandara (Maharashtra); Mahasamund, Ambikapur, Surguja, Raigarh, Dhamtari, Durg & Raigarh (Chhattisgarh); Garhwa and Latehar (Jharkhand); Annappur, Chhindwada, Dindori, Hosangabad, Narshinghpur & Shahdol (Madhya Pradesh) and Bankura (West Bengal).
<1	24	35	Rest of the districts in Assam, Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Meghalaya, Odisha, Uttar Pradesh, Telangana and West Bengal.
Total	73	183	

Source: Lac, Plant Resin and Gums Statistics 2016: At a Glance, IINRG

Table: 4 shows that the highest number of lac processing centres i.e. 100 of 17 districts are engaged in processing ranging between 100-500 tons, followed by 35 centres of 24 districts with less than 1 tons, 20 centres of 6 districts with more than 1000 tons, 16 centres of 22 districts ranging between 1-100 tons and 12 centres of 4 districts between 500-1000 tons.

Findings of the Study

1. Mainly five states in India are working with lac processing activities.
2. Most of the centres are engaged in processing of lac ranging between 500-1000 tons.
3. The trend of quantity of lac processed is upward.

Hindrances faced by Lac Processing Centres in India

1. Insufficiency of water in some states especially in summer season.
2. Problems of disposal of industrial waste causing environmental pollution.
3. Problems of power failure, breakdown of machine etc in the factory.
4. Non-availability of skilled labour.
5. Insufficiency of air conditioned warehouse.
6. More use of old technology in lac processing.

Suggestions

1. More states in India should come forward to promote lac processing activities.
2. Capacity of lac processing centres should be increased.
3. Proper training should be provided to turn the unskilled workers into skilled ones.
4. Modern technology for lac processing should be applied as far as practicable.

5. Government should take initiatives in arranging water facilities, eco-friendly disposal of waste, air conditioned warehouse and other infrastructural facilities.

Conclusion

Lac comprises a very significant position in India which meets the needs of livelihood of many people and on the other hand, earns huge foreign money. Presently, the lac processing centres confront with numerous problems and cannot work with full capacity. Majority of states of the country are not engaged in lac processing activities. Nevertheless, after a thorough study about lac processing in India, it is observed an indication of a development and prosperity in lac processing in India. Therefore, in spite of various problems on the way of lac processing, a bright future is waiting for it if the government and other concerned authorities become careful enough about the matter by providing their helping hands towards lac processing centres which will lead to financial progress to the country.

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