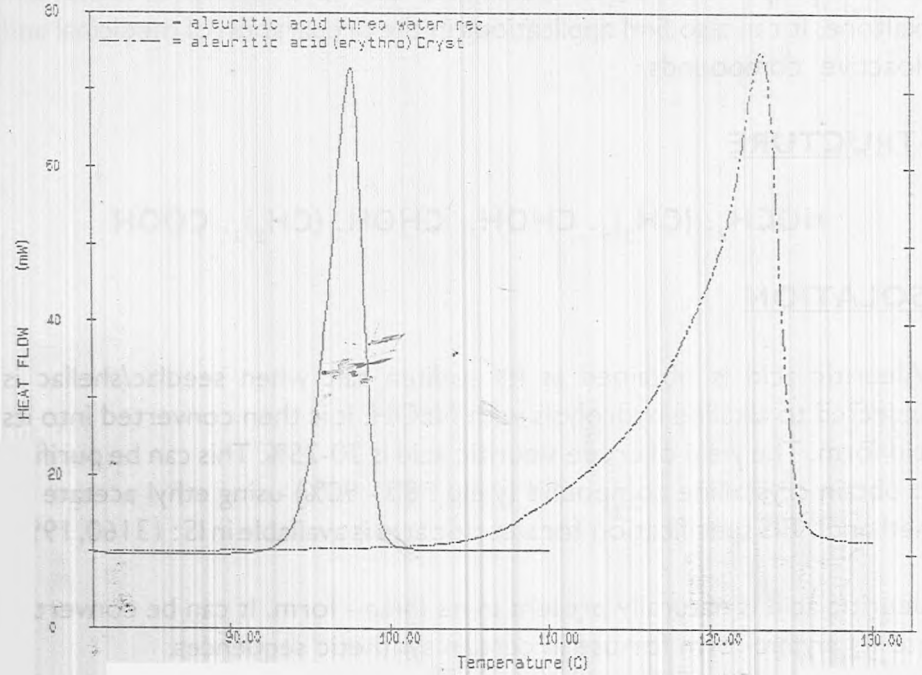
ALEURITIC ACID



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Aleuritic acid (9, 10, 16 - trihydroxypalmitic acid) is a major constituent acid (~ 35%) of lac resin. It can easily be isolated from lac by a simple process. It is mainly used, in the perfumery industry, as a starting material for the preparation of ambrettolide, isoambrettolide, civetone and exaltone. It can also find applications in the preparation of medicinal and bioactive compounds.

STRUCTURE

$$HOCH_2.(CH_2)_5.CHOH.\ CHOH.(CH_2)_7.COOH$$

ISOLATION

Aleuritic acid is obtained as its sodium salt when seedlac/shellac is subjected to alkaline hydrolysis with NaOH. It is then converted into its acid form. The yield of crude aleuritic acid is 20-25%. This can be purified to obtain crystalline compound (yield : 80 - 90%) using ethyl acetate or methanol. BIS specification for aleuritic acid is available in IS: 13160, 1991.

Aleuritic acid is naturally present in its *threo* - form. It can be converted into its *erythro*-form for use in certain synthetic sequences.

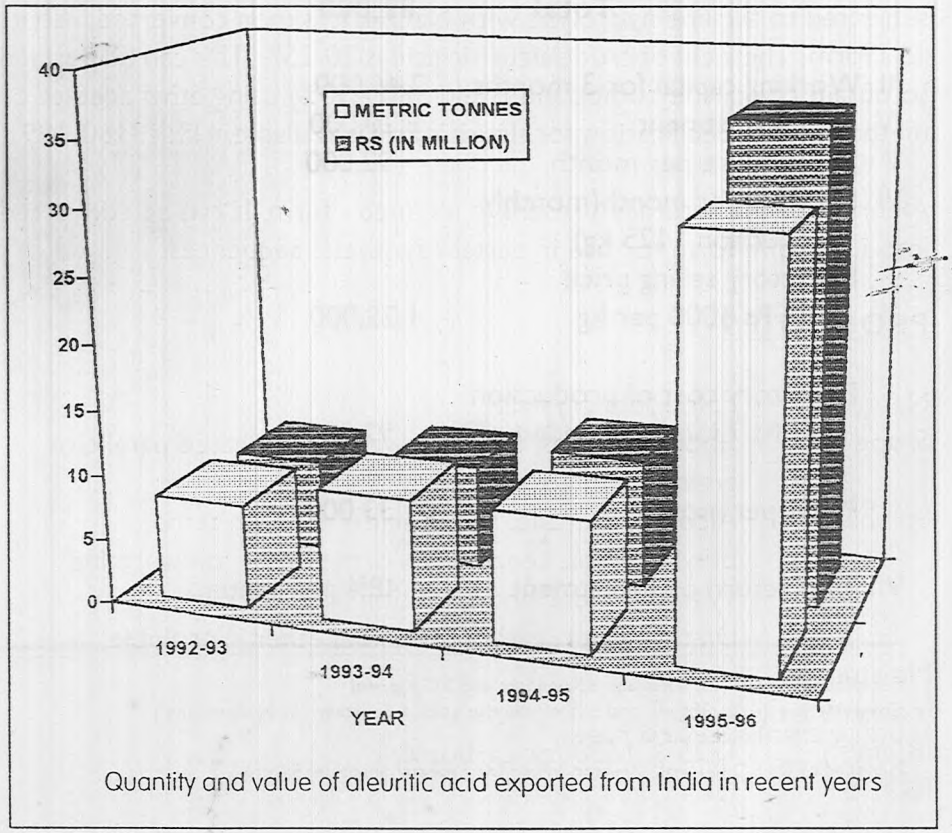
PROPERTIES

Nature :	colourless crystals
Shape :	Rhombic flakes, from hotwater; elongated parallelogram, from aq. alcohol
Solubility :	Alcohol, acetone, acetic acid - at room temp. Ethyl acetate, benzene, chloroform - on warming Water - under hot condition Diethyl ether, carbon disulfide, ether - Insoluble
Moisture content :	1.0%
IR(cm^{-1}) :	1725 & 1655 for carbonyl
R.D. :	1.1

APPLICATIONS

Aleuritic acid can be used for the preparation of compounds for a wide range of applications. Some of the conventional and potential applications of aleuritic acid are :

- ❑ perfumery compounds
- ❑ insect sex pheromones
- ❑ pharmaceutical chemicals
- ❑ esters with styrene - acrylic acid co - polymer, as binder
- ❑ metallic salts, as stabilizers
- ❑ polymeric ester, in GLC
- ❑ plant growth regulators



Quantity and value of aleuritic acid exported from India in recent years

MANUFACTURE

Outline scheme for producing 5 kg of aleuritic acid per day

I	Non - recurring expenditure	
	Land, building etc.	2,45,000
	Machinery & equipments	3,12,000
	Miscellaneous	17,000
	Total	**5,74,000**
II	Recurring expenditure (per month)	
	Raw materials	68,000
	Salary, wages	6,000
	Others	8,000
	Total	**82,000**
III	Working capital for 3 months	2,46,000
IV	Total Investment	8,20,000
V	Expenditure per month	92,000
VI	Receipts per month(monthly production 125 kg)	
	Ex-factory selling price @ Rs 1000 per kg	1,25,000
	Ex-factory cost of production @ Rs 735/- kg(rounded off)	92,000
	Profit per month	33,000
VII	Net return on investment	= 48% per annum

Compilation: R.N.Majee, R.Ramani , I.Rajendran and S.C.Agarwal
Cover: Melting profile of *threo* and *erythro* aleuritic acids, (courtesy - D. N. Goswami)
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