



SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

Sathy Main Road, SNS Kalvi Nagar,
Saravanampatti Post, Coimbatore - 641 035,
Tamil Nadu.



BENZOIN



BENZOIN:

- **SYNONYM:** Sumatra benzoin, Loban (Luban), Benzonium, Gum benjamin, Siam benzoin.



BIOLOGICAL SOURCE:

- It is balsamic resin obtained from incision on stem of *Styrax benzoin* Dryand (Sumatra benzoin) or *Styrax paralleloneurus* Perkins and from other species of *Styrax* is known in the market as Sumatra benzoin or it may also contain balsamic resin from *Styrax tonkinesis* & other species commercially known as Siam benzoin, belonging to family **Styraceae**. It should contain not less than 25% of total balsamic acids with reference to dry alcohol soluble matter.

Styrax benzoin Dryand – Sumatra benzoin

Styrax paralleloneurus - Sumatra benzoin

Styrax tonkinesis - Siam benzoin

Styrax subdenticulata – Penang benzoin

GEOGRAPHICAL SOURCE-

- Indigenous to south eastern Asia & East Indies.
- Sumatra benzoin- Sumatra islands, Malacca, Malaya, Java & Borneo.
- Siam benzoin- Thailand, Vietnam & Laos
- *S. subdenticulata*--- Penang benzoin.

GEOGRAPHICAL SOURCE-

- The plant from which benzoic is obtained are large trees indigenous to south eastern Asia and East Indies
- Sumatra benzoin is mostly derived from the cultivated plants in Sumatra Island.
- Siam Benzoin is come mostly from the province of Luang Prabang of Thailand
- it is also produced in Vietnam and Laos.



MORPHOLOGY:

Sumatra benzoin

- **Colour:** - Grayish brown to gray.
- **Odour:** - Aromatic & characteristic.
- **Taste:** - Sweetish & slightly acrid.
- **Size:** - It occurs in the form of lumps of varying sizes or tears. Tears are externally yellowish, milky white; the surface is uneven when heated fumes of benzoic & cinnamic acids are produced.



Siam benzoin

- **Colour:** - Yellowish brown to rusty brown.
- **Odour:** - Agreeable & vanilla like.
- **Taste:** - Sweetish & slightly acrid.
- **Size:** - It occurs as hard brittle masses and when heated it is softened & becomes plastic.



Schematic diagram



Fig. 6: *Styrox benzoin* plant

COLLECTION & PREPRATION

- Benzoin trees are not grown in India. (Imported from Indonesia).
- Benzoin is a pathological resin & Collected from 6 year old plant.
- Incisions are made at base of plant.
- Do not collect first yellowish exudates (No medicinal value) .
- Later exudates are collected, Dried.
- Size reduction is carried out & Packed, AY10kg



CHEMICAL CONSTITUENTS:

- Sumatra benzoin contains free balsamic acids 25 % (benzoic and cinnamic acid (20%) and ester derived from them.
- Triterpenoid acids such as sumaresinolic acid & sia resinolic acid are also present. The major constituent of Siam benzoin (less amt. of cinnamic acid) is an ester Coniferyl benzoate (About 76%)

- The drug also contains styrol, vanillin & phenyl propyl cinnamate.
- Siam benzoin differs from Sumatra variety that it contains insufficient cinnamic acid to give an odour of benzaldehyde when warmed with potassium permagnate solution.

Chemical test

- Alcoholic sol. of benzoin + H₂O – Milky white colour.
- Heat benzoin in test tube- close T.T. with glass slide--- observe slide under microscope--- crystals of cinnamic acid.
- Benzoin + ether + 2-3 drops of H₂SO₄ –
Dark brown –Sumatra
Dark purple-Siam
- Benzoin + KMnO₄ -----warm
Smell of benzealdehyde- Sumatra
No odour-Siam

STANDARD

Sr. No.		SIAM BENZOIN	SUMATRA BENZOIN
1	Alcohol soluble matter	NLT 90%	NLT 76%
2	Benzoic acid content	NLT 12%	NLT 6%
3	Foreign organic matter	< 1.0%	-
4	Loss on drying	NOT MORE THAN 10 %	
5	Acid insoluble ash	NOT MORE THAN 10 %	


Difference between Sumatra & Siam benzoin

Sr. No.	Sumatra benzoin	Siam benzoin
1	<u><i>Styrax benzoin Dryand</i></u> <u><i>Styrax paralleloneurus</i></u>	<u><i>Styrax tonkinesis</i></u>
2	Sumatra islands	Thailand, Vietnam & Laos
3	Colour: - Grayish brown to gray	Colour: - Yellowish brown to rusty brown.
4	Odour: - Aromatic & characteristic.	Odour: - Agreeable & vanilla like.
5	Size: - It occurs in the form of lumps of varying sizes or tears.	It occurs as hard brittle masses.

Sr. No.	Sumatra benzoin	Siam benzoin
6	when heated fumes of benzoic & cinnamic acids are produced.	when heated it is softened & becomes plastic.
7	free balsamic acids (benzoic and cinnamic acid)	ester Coniferyl benzoate (About 76%) (less amt. of cinnamic acid)
8	Give an odour of benzaldehyde	Does not give an odour of benzaldehyde
9	Benzoin + ether + 2-3 drops of H_2SO_4 – Dark brown	Benzoin + ether + 2-3 drops of H_2SO_4 – Dark purple

Uses :

- It is used as an irritant expectorant, carminative & diuretic.
- It is externally used as antiseptic & protective.
- It is used in the form of compound tincture of benzoin & as an inhalation especially in the treatment of upper respiratory tract infection.

- 
- It is preferred to retard rancidity of fat & oils in the preparation of benzoated lard.
 - Industrially it is used to fix the odour of incense, soaps, perfumes & several other cosmetics & to mask the taste of Pharmaceutical preparations.