BENZOIN
BENZOIN:

- **SYNONYM**: Sumatra benzoin, Loban (Luban), Benzonium, Gum benjiamin, Siam benzoin.
BIOLOGICAL SOURCE:

- It is balsamic resin obtained from incision on stem of *Styrax benzoin* Dryand (Sumatra benzoin) or *Styrax paralleleoneurus* 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 provience of Luang Probang of Thialand.
- 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: *Styrax benzoin* plant
COLLECTION & PREPARATION

- 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.
- Benzoin + ether + 2-3 drops of H₂SO₄ –
  - Dark brown – Sumatra
  - Dark purple – Siam
- Benzoin + KMnO₄ –-warm
  - Smell of benzealdehyde – Sumatra
  - No odour – Siam
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>SIAM BENZOIN</th>
<th>SUMATRA BENZOIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alcohol soluble matter</td>
<td>NLT 90%</td>
<td>NLT 76%</td>
</tr>
<tr>
<td>2</td>
<td>Benzoic acid content</td>
<td>NLT 12%</td>
<td>NLT 6%</td>
</tr>
<tr>
<td>3</td>
<td>Foreign organic matter</td>
<td>&lt; 1.0%</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Loss on drying</td>
<td>NOT MORE THAN 10 %</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Acid insoluble ash</td>
<td>NOT MORE THAN 10 %</td>
<td></td>
</tr>
</tbody>
</table>
## Difference between Sumatra & Siam benzion

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<thead>
<tr>
<th>Sr. No.</th>
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<th>Siam benzion</th>
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<tbody>
<tr>
<td>1</td>
<td><em>Styrax benzoin</em> Dryand <em>Styrax paralleloneurus</em></td>
<td><em>Styrax tonkinesis</em></td>
</tr>
<tr>
<td>2</td>
<td>Sumatra islands</td>
<td>Thailand, Vietnam &amp; Laos</td>
</tr>
<tr>
<td>3</td>
<td><strong>Colour:</strong> - Grayish brown to gray</td>
<td><strong>Colour:</strong> - Yellowish brown to rusty brown.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Odour:</strong> - Aromatic &amp; characteristic.</td>
<td><strong>Odour:</strong> - Agreeable &amp; vanilla like.</td>
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<td><strong>Size:</strong> - It occurs in the form of lumps of varying sizes or tears.</td>
<td>It occurs as hard brittle masses.</td>
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<td>Sr. No.</td>
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<td>Siam benzion</td>
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<td>--------</td>
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</tr>
<tr>
<td>6</td>
<td>when heated fumes of benzoic &amp; cinnamic acids are produced.</td>
<td>when heated it is softened &amp; becomes plastic.</td>
</tr>
<tr>
<td>7</td>
<td>free balsamic acids (benzoic and cinnamic acid)</td>
<td>ester Coniferyl benzoate (About 76%) (less amt. of cinnamic acid)</td>
</tr>
<tr>
<td>8</td>
<td>Give an odour of benzaldehyde</td>
<td>Does not give an odour of benzaldehyde</td>
</tr>
<tr>
<td>9</td>
<td>Benzoin + ether + 2-3 drops of $\text{H}_2\text{SO}_4$ – Dark brown</td>
<td>Benzoin + ether + 2-3 drops of $\text{H}_2\text{SO}_4$ – Dark purple</td>
</tr>
</tbody>
</table>
**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.