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Benzoin

DEFINITION

Benzoin is the balsamic resin obtained from *Styrax benzoin* Dryand. or *Styrax parallelloneurus* Perkins, known in commerce as Sumatra Benzoin, or from *Styrax tonkinensis* (Pierre) Craib ex Hartwich, or other species of the Section *Anthostyrax* of the genus *Styrax*, known in commerce as Siam Benzoin (Fam. Styraceae).

Sumatra Benzoin yields NLT 75.0% of alcohol-soluble extractive, and Siam Benzoin yields NLT 90.0% of alcohol-soluble extractive.

IDENTIFICATION

- **A.** A solution in alcohol becomes milky upon the addition of water, and the mixture is acid to litmus paper.
- **B.** Identification of articles of botanical origin ⟨563⟩

Analysis: Heat a few fragments in a test tube.

Acceptance criteria: Sumatra Benzoin evolves a sublimate consisting of plates and small, rod-like crystals of cinnamic acid and its esters that strongly polarize light. Siam Benzoin evolves a sublimate directly above the melted mass, consisting of numerous long, rod-shaped crystals of benzoic acid that do not strongly polarize light.

ASSAY

- **Procedure**

Sample: Place 2 g of Benzoin in a tared extraction thimble, and insert the thimble in a continuous-extraction apparatus. Place 100 mg of sodium hydroxide in the receiving flask of the apparatus, and extract the Benzoin with alcohol for 5 h, or until completely extracted. Dry the extraction thimble containing the insoluble residue at 105° for 2 h.

Analysis: On a separate portion of Benzoin, determine the water content as directed for *Water Determination* ⟨921⟩, *Method II*. Calculate the weight of water in the quantity of the Benzoin taken for the *Assay*, and subtract it from the original weight of the Benzoin taken. The difference between this result and the weight of the residue in the extraction thimble represents the alcohol-soluble extractive.

Acceptance criteria: The alcohol-soluble extractive is NLT 75.0% for Sumatra Benzoin and NLT 90.0% for Siam Benzoin.

OTHER COMPONENTS

- **Content of Benzoic Acid**

Analysis: Treat 1 g of powdered Benzoin with 15 mL of warm carbon disulfide. Filter through a small pledget of cotton, wash the cotton with an additional 5 mL of carbon disulfide, and allow the filtrate to evaporate spontaneously.

Acceptance criteria: The weight of the residue is NLT 6.0% of the weight of Benzoin taken for Sumatra Benzoin and NLT 12.0% for Siam Benzoin. This residue meets the requirements for *Identification Tests—General* ⟨191⟩, *Benzoate*.

IMPURITIES

Inorganic Impurities

- **Articles of Botanical Origin,** *Acid-Insoluble Ash* ⟨561⟩**:** NMT 1.0% in Sumatra Benzoin; NMT 0.5% in Siam Benzoin

Organic Impurities

- **Procedure: Articles of Botanical Origin,** *Foreign Organic Matter*⟨561⟩**:** NMT 1.0% in Siam Benzoin

SPECIFIC TESTS

- **Botanic Characteristics**

Sumatra Benzoin: Blocks or lumps of varying size, made up of tears, compacted together, with a reddish brown, reddish gray, or grayish brown resinous mass; the tears are externally yellowish or rusty brown, milky white on fresh fracture; hard and brittle at ordinary temperatures, but softened by heat.

Siam Benzoin: Pebble-like tears of variable size and shape, compressed, yellowish brown to rusty brown externally, milky white on fracture, separate or very slightly agglutinated; hard and brittle at ordinary temperatures, but softened by heat.

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in well-closed containers.
- **Labeling:** Label it to indicate whether it is Sumatra Benzoin or Siam Benzoin.

Topic/Question	Contact	Expert Committee
BENZOIN	Documentary Standards Support	SM32020 Small Molecules 3

Chromatographic Database Information: Chromatographic Database

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