

U.S. PHARMACOPEIA

Search USP29

Go

Myrrh

» Myrrh is the oleo-gum resin obtained from stems and branches of *Commiphora molmol* Engler and other related species of *Commiphora* other than *Commiphora mukul* (Fam. Burseraceae).

Packaging and storage— Preserve in tight containers, and store at controlled room temperature, in a dry place.

Labeling— Label it to indicate the species of *Commiphora* from which the oleo-gum resin was obtained. Label it to indicate that it is intended for topical and oropharyngeal use only.

Botanic characteristics— Myrrh occurs in rounded or irregular tears, or bumps of agglutinated tears, of variable sizes; brownish yellow to reddish brown, covered with some grayish or yellowish dust, externally; rich brown or reddish brown internally, sometimes marked with white spots or lines; thin splinters, translucent or almost transparent; brittle; waxy, granular, conchoidal fracture; characteristic and aromatic odor; aromatic, bitter, and acrid taste.

Identification—

A: Triturate 0.4 g of crushed Myrrh with 1 g of washed sand, shake for a few minutes with 10 mL of ethyl ether, and filter. Evaporate the filtrate to dryness in a porcelain dish, and add a few drops of nitric acid to the residue: a purplish violet color is produced instantly.

B: Transfer 0.1 g of powdered Myrrh to a test tube, and add 1 mL of nitric acid: a red color is produced. Upon addition of a crystal of vanillin, the red color deepens. The red color does not diminish when water is added.

C: [Thin-Layer Chromatographic Identification Test](#) [〈 201 〉](#) —

Test solution— Transfer 0.5 g of finely powdered Myrrh to a 10-mL centrifuge tube, add 2 mL of alcohol, shake for 1 minute, centrifuge, and filter. Apply 2 μ L of the filtrate to the plate.

Standard solution— Dissolve accurately weighed quantities of (*E*)-anethole, linalool, (–)-bornyl acetate, and (*R*)-(–)-carvone in toluene, and dilute quantitatively, and stepwise if necessary, with toluene to obtain a solution having known concentrations of about 7 μ g per mL of (*E*)-anethole, 8 μ g per mL of linalool, and 10 μ g per mL each of (–)-bornyl acetate and (*R*)-(–)-carvone. Apply 1 μ L to the plate.

Developing solvent system: a mixture of toluene and ethyl acetate (93:7).

Spray reagent— Dissolve 0.5 mL of *p*-anisaldehyde in 10 mL of glacial acetic acid, add 85 mL of methanol, and mix. Carefully add 5 mL of sulfuric acid, and mix. [NOTE—Prepare fresh immediately before use.]

Procedure— [NOTE—Wash the plate in *Developing solvent system*, and air-dry prior to use.] Proceed as directed in the chapter. Spray the plate with *Spray reagent*, heat in an oven at 100° for 5 minutes, and examine in white light. The chromatogram of the *Standard solution* exhibits four well-resolved spots: an olive-brown spot due to (*E*)-anethole at an R_F value of about 0.6; an orange-brown spot due to (–)-bornyl acetate at an R_F value of about 0.5; a reddish brown spot due to (*R*)-(–)-carvone at an R_F value of about 0.4; and a deep gray spot due to linalool at an R_F value of about 0.2. The chromatogram of the *Test solution* exhibits an intense purplish red spot at an R_F value of about 0.7 and two moderately

intense purplish red spots at R_f values of about 0.5 and 0.4. The chromatogram of the *Test solution* may exhibit other spots of varying intensities, including a spot at the origin.

D: [Thin-Layer Chromatographic Identification Test](#) [〈 201 〉](#) —

Test solution— Transfer 0.5 g of finely powdered Myrrh to a test tube containing 5.0 mL of alcohol, and warm the mixture in a water bath for 2 to 3 minutes. Cool, and filter.

Standard solution— Dissolve accurately weighed quantities of (*E*)-anethole and thymol in alcohol, and dilute quantitatively, and stepwise if necessary, with alcohol to obtain a solution having known concentrations of about 4 µg of (*E*)-anethole per mL and about 1 mg of thymol per mL.

Developing solvent system: a mixture of toluene and ethyl acetate (98:2).

Procedure— Proceed as directed in the chapter. Allow the plate to air-dry, and examine under UV light at 365 nm. The chromatogram of the *Test solution* shows no blue to violet fluorescent zones in the lower third of the chromatogram (*absence of Commiphora mukul*).

[Loss on drying](#) [〈 731 〉](#) — Dry 1.0 g of powdered Myrrh between 100° and 105° for 2 hours: it loses not more than 15.0% of its weight.

[Foreign organic matter](#) [〈 561 〉](#) : not more than 2%.

[Total ash](#) [〈 561 〉](#) : not more than 10.0%.

[Acid-insoluble ash](#) [〈 561 〉](#) : not more than 5.0%.

[Alcohol-soluble extractives, Method 2](#) [〈 561 〉](#) : not less than 40% and not more than 70%.

[Water-soluble extractives, Method 2](#) [〈 561 〉](#) : not less than 50%.

[Volatile oil content](#) [〈 561 〉](#) : not less than 6.0%.

Heavy metals, Method II [〈 231 〉](#) : 0.002%.

[Residual solvents](#) [〈 467 〉](#) : meets the requirements.
(Official January 1, 2007)

Auxiliary Information— *Staff Liaison* : [Maged H. Sharaf, Ph.D., Senior Scientist](#)

Expert Committee : (DSB05) Dietary Supplements - Botanicals

USP29–NF24 Page 1464

Pharmacopeial Forum : Volume No. 28(1) Page 78

Phone Number : 1-301-816-8318