

Status: Currently Official on 16-Feb-2025
 Official Date: Official as of 01-Dec-2015
 Document Type: USP Monographs
 DocId: GUID-46E4B7EE-2374-4BF5-8372-81CD158FE179_1_en-US
 DOI: https://doi.org/10.31003/USPNF_M71745_01_01
 DOI Ref: s3i62

© 2025 USPC
 Do not distribute

Psyllium Husk

DEFINITION

Psyllium Husk is the cleaned, dried seed coat (epidermis) separated by winnowing and thrashing from the seeds of *Plantago ovata* Forssk., known in commerce as Blond Psyllium, Indian Psyllium, or Ispaghula, or from *Plantago arenaria* Waldst. & Kit. (*Plantago psyllium* L.) known in commerce as Spanish or French Psyllium (Fam. *Plantaginaceae*), in whole or in powdered form.

IDENTIFICATION

- **A.** Mounted in cresol, cells, viewed microscopically, are composed of polygonal prismatic cells having 4–6 straight or slightly wavy walls.
- **B.** Mounted in alcohol and irrigated with water, viewed microscopically, the mucilage in the outer part of the epidermal cells swells rapidly and goes into solution.

IMPURITIES

- [ARTICLES OF BOTANICAL ORIGIN, Acid-Insoluble Ash\(561\)](#): NMT 1.0%
- [ARTICLES OF BOTANICAL ORIGIN, Limits of Elemental Impurities\(561\)](#): Meets the requirements
- **ORGANIC IMPURITIES PROCEDURE 1: LIGHT EXTRANEOUS MATTER**

[NOTE—Perform this test in a well-ventilated hood.]

Sample: 99–101 g of Psyllium Husk, weighed to 0.1 g accuracy

Analysis: Transfer the *Sample* to a 1000-mL tall-form beaker. Add 800 mL of trichloroethylene, previously adjusted to a temperature of 24°–26°, and maintain this temperature throughout the test. Stir the husk for 5 s, and allow it to settle while protecting the surface from drafts in the hood. Remove the floating material with a spoon made of 50-mesh screen, and transfer the material to a piece of filter paper in a dish. Stir the husk mixture again, allow it to settle, remove the floating material again, and combine it with the material on the paper. Repeat this procedure until no more material appears on the surface. Dry the removed material with the paper in a hood and then in an oven at 40° for 3 h. Cool to room temperature. Weigh the filter paper with the material. Brush the material off the paper, weigh the paper, and then calculate the percentage of light extraneous matter.

Acceptance criteria: NMT 5%

- **ORGANIC IMPURITIES PROCEDURE 2: INSECT INFESTATION**

Sample: 25 g

Analysis: Transfer the *Sample* to a 250-mL beaker, add sufficient solvent hexane to saturate, add an additional 75–100 mL of solvent hexane, and allow to stand for 10 min, stirring occasionally with a stirring rod. Wet a sheet of filter paper with alcohol, and filter the mixture with the aid of vacuum. Discard the filtrate. Transfer the residue to the original beaker with the aid of alcohol. Add alcohol to bring the volume to 150 mL above the level of the transferred residue. Boil for 10 min. Filter through alcohol-wetted paper as above. Prepare a trap flask consisting of a 2000-mL graduated, narrow-mouth conical flask into which is inserted a rubber disk supported on a stiff metal rod 4 mm in diameter and longer than the height of the flask, the rod being threaded at the lower end and furnished with nuts and washers to hold the disk in place, and the disk being of the proper shape and size to prevent liquid in the body of the flask from spilling when it is pressed up against the neck from the inside. Transfer the residue to the trap flask, completing the transfer with the aid of hot water. Add sufficient hot water to bring the volume to 1000 mL. Add 20 mL of hydrochloric acid. Raise the rod, and support it so that the rubber disk is held above the liquid level. Rinse the rubber disk with hot water. Spray the inside of the neck of the flask with an antifoam spray. Boil for 30 min, and cool to room temperature. Add 40 mL of solvent hexane, and agitate for 1 min by tilting the flask and moving the rod vertically with wrist action. Allow to stand for 5 min. Add water to bring the level of liquid to the neck of the flask, and allow to stand for 20 min. Simultaneously rotate the disk to free it from settled material, and raise it as far as possible into the neck of the flask. Prepare a sheet of ruled filter paper with lines approximately 5 mm apart for filtration by moistening it with water and placing it on a vacuum funnel. Transfer the material trapped in the neck of the flask to the filter with the aid of water. If necessary, wash the paper with alcohol to remove traces of hexane. Place the paper on a 100-mm petri dish that has been wetted with a solution containing equal volumes of glycerin and alcohol. Add 35 mL of solvent hexane to the flask, and gently stir with the trapping rod. Add water to bring the liquid level into the neck of the flask. Allow to stand for 15 min. Using the same technique as before, transfer the trapped material onto a separate paper. Examine the papers at 30× magnification.

Acceptance criteria

Powdered Psyllium Husk: NMT 400 insect fragments, including mites and psocids

Whole Psyllium Husk: NMT 100 insect fragments, including mites and psocids

- [ARTICLES OF BOTANICAL ORIGIN](#), [Pesticide Residue Analysis\(561\)](#): Meets the requirements

SPECIFIC TESTS

• BOTANIC CHARACTERISTICS

Histology—Husk: The epidermis is composed of large cells having transparent walls filled with mucilage, and the cells swell rapidly in aqueous mounts and appear polygonal to slightly rounded in a surface view when viewed from above (from below they appear elongated to rectangular). The swelling takes place mainly in the radial direction. The mucilage of the epidermal cells stains red with ruthenium red and lead acetate TS. The very occasional starch granules that are present in some of the epidermal cells and that may be found embedded in the mucilage are small and simple or compounded with four or more components.

Powdered psyllium seed husk: It is a pale to medium buff-colored powder having a slight pinkish tinge and a weak characteristic odor.

Occasional single and 2- to 4-compound starch granules, the individual grains being spheroidal plano to angular convex from 2–10 µm in diameter, are found embedded in the mucilage. Entire or broken epidermal cells are filled with mucilage. In surface view, the epidermal cells appear polygonal to slightly rounded. Mucilage stains red with ruthenium red TS and lead acetate TS. Some of the elongated and rectangular cells representing the lower part of epidermis and also radially swollen epidermal cells can be found.

- [MICROBIAL ENUMERATION TESTS \(61\)](#) and [TESTS FOR SPECIFIED MICROORGANISMS \(62\)](#): The total combined molds and yeasts count does not exceed 1000 cfu/g, and it meets the requirements of the test for absence of *Salmonella* species and *Escherichia coli*.

- [ARTICLES OF BOTANICAL ORIGIN](#), [Total Ash\(561\)](#): NMT 4.0%

- [WATER DETERMINATION](#), [Method II\(921\)](#): NMT 12.0%

• SWELL VOLUME

Sample: 3.5 g of Psyllium Husk

Analysis: Transfer 250 mL of simulated intestinal fluid TS without enzymes to a glass-stoppered 500-mL graduated cylinder. Gradually, with shaking, add the *Sample* until a uniform, smooth suspension is obtained. Dilute with the same fluid to 500 mL. Shake the cylinder for 1 min every 30 min for 8 h. Allow the gel to settle for 16 h (total time is 24 h). Determine the volume of the gel.

Acceptance criteria

Powdered Psyllium Husk: NLT 40 mL/g

Whole Psyllium Husk: NLT 35 mL/g

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in well-closed containers, secured against insect attack.

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
PSYLLIUM HUSK	Nam-Cheol Kim Scientific Liaison	BDSHM2020 Botanical Dietary Supplements and Herbal Medicines
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	BDSHM2020 Botanical Dietary Supplements and Herbal Medicines

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

Pharmacopeial Forum: Volume No. PF 40(5)

Current DocID: GUID-46E4B7EE-2374-4BF5-8372-81CD158FE179_1_en-US

DOI: https://doi.org/10.31003/USPNF_M71745_01_01

DOI ref: [s3i62](#)