



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 19641-2015

**National food safety standard - Oil seeds
(English Translation)**

Issued on: November 13, 2015

Implemented on: November 13, 2016

**Issued by: National Health and Family Planning Commission of the
People's Republic of China**

Table of Contents

Foreword...	3
1 Scope...	4
2 Terms and Definitions...	4
3 Technical Requirements...	4
4 Others...	5
Appendix A Inspection Method for Datura Seeds...	6
Appendix B Inspection Method for Ergot...	9
Bibliography...	11

Foreword

This Standard serves as a replacement of GB 19641-2005 Hygienic Standard for Oil Seeds.

In comparison with GB 19641-2005, the main changes are as follows.

- The title of the Standard is modified into "National Food Safety Standard - Oil Seeds";
- Sensory requirements are modified;
- Physical and chemical indicators are modified;
- Appendixes are added.

National Food Safety Standard - Oil Seeds

1 Scope

This document is applicable to oil seeds for making edible vegetable oil.

2.1 Moldy Kernels

Moldy kernels refer to kernels whose surface is obviously moldy and damages the embryo, endosperm or cotyledon, and has no edible value.

3.1 Sensory Requirements

The sensory requirements shall comply with the stipulations of Table 1.

3.4 Limits of Pesticides Residue

The limits of pesticides residue shall comply with the stipulations of GB 2763.

4 Others

The marking of genetically modified edible vegetable oils shall comply with the relevant national stipulations.

Appendix A

Inspection Method for Datura Seeds

A.1 Identification

A.1.1 Morphological characteristics

Datura seeds are circular, rectangular, reniform, triangular reniform, elliptical broad ovoid, 3 mm ~ 5 mm long, 2.5 mm ~ 4.0 mm wide, flat on both sides, relatively thick or thick on the back, smooth edges or with wavy ridges. Seed is leathery, light yellow, yellowish brown, tan to

dark brown; the surface is slightly wrinkled, or slightly (obviously) concave, with (or without) coarse texture and dimples. The hilum is long triangular, regular triangular or T-shaped, sometimes, its surface is often covered with residual white suspensor. The seeds contain abundant white endosperm, and the embryos are mostly annular or curved, and rarely straight.

A.1.2 Identification

Those that comply with the above description of morphological characteristics in A.1.1 can be

identified as the datura.

A.2 Alkaloid Colorimetric Characterization

A.2.1 Principle

Atropine and other alkaloids contained in the specimen have a chromogenic reaction with fuming nitric acid and potassium hydroxide solution after extraction.

A.2.2 Reagents

A.2.3 Analytical procedures

Put about 30 datura seeds into a mortar, add ammonia water (1 + 1) to soak them for a

while,

then, grind them into a viscous shape; add diethyl ether and grind it for three times, 10 mL each

time; combine the diethyl ether in a separatory funnel, add 10 mL of hydrochloric acid (1 + 5),

shake and extract it for 1 min, then, separate the hydrochloric acid layer into another separatory

funnel. Add ammonia water (1 + 1) to make it alkaline and use 10 mL of chloroform to shake

and extract it for 1 min, then, extract again, combine the chloroform layer; through anhydrous

sodium sulfate, dehydrate it and concentrate to 0.5 mL; reserve it for later use.

A.3 Thin Layer Chromatographic Characterization

A.3.1 Principle

After atropine and other alkaloids contained in the specimen are extracted, use thin layer to separate it, then, use a color developing agent to perform color development and compare it

with the reference standard.

A.3.2 Reagents

A.3.2.1 Silica gel G thin-layer plate. thickness 0.3 mm ~ 0.5 mm, activate at 105 °C for 1 h, then, put in a desiccator and reserve it for later use.

A.3.2.2 Developing solvent. methanol - ammonia water (200 + 3).

A.3.3 Analytical procedures

At 2 cm from the lower end of the thin-layer plate, spot 10 µL of standard solutions of atropine

and scopolamine, 30 µL ~ 100 µL of specimen extraction concentrate, with a distance of 1.5 cm between each spot. Place it in a developing tank saturated with developing solvent in advance, and wait until the front of the solvent reaches 10 cm ~ 15 cm, then, take it out and evaporate the developing agent; spray the color developing agent to manifest orange-red spots,

which is a positive reaction.

Appendix B

Inspection Method for Ergot

B.1 Identification

B.1.1 Morphological characteristics

Ergot is elongated or banana-shaped, sometimes slightly flat, 3 mm ~ 10 mm long, 1 mm ~ 7

mm thick, black or purple-black on the outside, with longitudinal grooves and transverse cracks,

brittle, easy to break, flat cross-section, blunt polygonal or oval, and the center is white, off-white or pinkish-white. After dormancy, sclerotium germinates to generate stroma; infertile stromata stalks are slender, with an oblate spherical head, 1 mm ~ 2 mm in diameter, reddish

brown and with perithecium grown on the outer edge.

B.2 Sclerethyrin and Ergot Alkaloids Characterization

B.2.1 Reagents

B.2.1.1 Tartaric acid solution (20 g/L).

B.2.1.2 Anhydrous ether.

B.2.1.6 Para-dimethylaminobenzaldehyde solution. weigh-take 0.125 g of para-dimethylaminobenzaldehyde, add 100 mL of diluted sulfuric acid (slowly pour 65 mL of sulfuric acid into 35 mL of water, mix it well and cool it) to dissolve it, then, add 0.1 mL of ferric chloride solution (50 g/L) and mix it well.

B.2.1.7 Absolute ethanol. there is no fluorescence when observed under the ultraviolet light with a wavelength of 365 nm.

B.2.2 Analytical procedures

Take 20 suspected ergots in a mortar, grind them and add tartaric acid solution (20 g/L) to grind

into a viscous shape; add diethyl ether and carefully grind for three times, 10 mL each time; incorporate the diethyl ether layer in a test tube, and keep the residue in the mortar. Add 0.5 mL

of saturated sodium bicarbonate solution to the test tube, shake it, and the sodium