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

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**Inspection of grain and oils-Standard atlas of stored grain
fungi-Part 3: Fusarium**

粮油检验 储粮真菌标准图谱 第3部分：镰刀菌属

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 3 of GB/T 26628 "Standard Atlas of Stored Grain Fungi for Inspection of Grain and Oils". Lower part.

- Part 1: Aspergillus;
- Part 2: Penicillium;
- Part 3: Fusarium;
- Part 4: Other common bacterial genera.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

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Introduction

Fungi are one of the important biological factors that cause the deterioration of grain quality. In order to early evaluate and identify fungi and mycotoxins in grain To better understand the pollution hazards of grain storage and reduce the risk of grain quality and safety, it is necessary to study the types and distribution of fungi in grain.

The standard atlas of stored grain fungi, which was established based on the different morphological characteristics of different fungi species under different growth conditions, can be used to accurately identify the fungi.

Provide auxiliary reference for fungal inspection in stored grain and improve the accuracy and reliability of fungal identification results.

GB/T 26628 "Standard Atlas of Stored Grain Fungi for Inspection of Grain and Oils" aims to specify the inspection requirements for different species of fungi in stored grains and give The standard atlas and characteristic descriptions of the main fungi in the species are planned to consist of four parts.

- Part 1: *Aspergillus* spp.
- Part 2: *Penicillium* spp.
- Part 3: *Fusarium* spp.
- Part 4: Other common bacterial genera.

Standard Atlas of Stored Grain Fungi for Grain and Oil Inspection Part 3: *Fusarium* spp.

1 Scope

This document defines the terms and definitions of the *Fusarium* genus in the Standard Atlas of Stored Grain Fungi, describes the test methods, and gives the common *Fusarium* species found in stored grains.

Bacterial colony morphological characteristics diagram and microscopic morphological characteristics diagram and characteristic description.

This document is intended as an auxiliary reference for the detection of *Fusarium* spp. in stored grains.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Fusarium

Ascomycota, Sordariomycetes, Hypocreales, Nectriaceae).

Note 1. The main characteristics of *Fusarium* are that the aerial hyphae are sparse, and some have no aerial hyphae at all, and the myxospore layer is directly produced by the matrix hyphae, which contains a large number of conidia. Conidia; Most species of microconidia usually have pseudo-capital, less commonly chain, or a combination of pseudo-capital and chain.

On branched or unbranched peduncles, the shapes are various, including oval, pear-shaped, elliptical, oblong, spindle-shaped, lanceolate, sausage-shaped, cylindrical, cone-shaped, etc.

The number of small conidia is usually greater than that of large conidia; large conidia are produced on the short mycelium.

The large conidia have various shapes, such as sickle-shaped, linear, spindle-shaped, lanceolate, columnar, etc.

The apical cells are various in shape, such as short beak, cone, hook, line, column, etc.

Narrow or suddenly contracted; aerial hyphae, stroma, myxospores, sclerotia can be various colors. The matrix can also be dyed into various colors; thick-walled spores are interstitial or apical.

They grow singly or in clusters or nodules, sometimes in large conidial chambers, and are colorless or of various colors, smooth or rough.

Note 2. Toxigenic fungi of the genus *Fusarium* mainly include *Fusarium graminearum*, *Fusarium moniliforme*, *Fusarium trilineata*, *Fusarium oxysporum* and *Fusarium equisetum*, which can produce single Secondary metabolites include cetosporium compounds, zearalenone, moniliformin and butenolide.

4.1 Observation of colony morphology

The indoor environment should be bright and well-lit, or the observation should be conducted under a light source with an illumination of 450lx±100lx.

Follow Appendix A. For culture medium preparation, see Appendix B.

4.2 Microscopic morphological observation

According to the different objective lens magnifications, adjust the light source intensity of the microscope and the aperture diaphragm of the condenser. The aperture diaphragm of the condenser should be consistent with the objective lens used.

The numerical aperture of the objective lens should be consistent or slightly larger, so that the entire observation field is bright and suitable. The operation of microscopic morphological characteristics observation shall be carried out according to Appendix A.