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Inspection of grain and oils-Standard atlas of stored grain fungi-Part 2: Penicillium

粮油检验 储粮真菌标准图谱 第2部分：青霉属

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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 2 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.

This document was submitted by the State Administration of Grain and Material Reserves.

This document is under the jurisdiction of the National Technical Committee on Standardization of Cereals and Oils (SAC/TC270).

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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 guide 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.

This provides auxiliary reference for fungal testing in stored grain and improves 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 2: Penicillium

1 Scope

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

Colony morphological characteristics diagram and microscopic morphological characteristics diagram and characteristic description.

This document is used as a supplementary reference for the detection of Penicillium fungi 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 Penicillium

Deuteromycotina, Hyphomycetes, Hyphomycetales, A genus of the family Moniliaceae.

Note 1.The main characteristics of Penicillium are that the hyphae are thin, with transverse septa, colorless and transparent or light in color, and those with color are rare; the edges of the colonies composed of mycelium are usually neat, with few There are irregular ones; conidiophores occur in buried hyphae, matrix hyphae or aerial hyphae; conidiophore stems are thin, often with transverse septa, and some species have different tops.

The shape and complexity of the brooms are the characteristics of the fungi of the genus Penicillium.

The main basis for identification of species is single whorl of broom-like branches, double whorl of broom-like branches, three whorls of broom-like branches, four whorls of broom-like branches and irregular ones; conidia The cells are small, unicellular, spherical/nearly spherical, elliptical/nearly elliptical, ovoid or cylindrical, with smooth/nearly smooth walls and varying degrees of roughness.

Different colors are formed on the surface, such as green, blue, gray, olive, and less brown. The color often becomes darker or darker with the increase of bacterial age.

Note 2.Some Penicillium fungi can produce secondary toxic metabolites such as citrinin, cyclopentyl-1, patulin, huangtianjing and rubrotoxin.

3.2 Conidiophrenia

The entire fruiting structure that produces conidia in Penicillium.

Note. Includes spore stems and broom branches.

3.3 stipe of conidiophore

In Penicillium, specialized hyphae arising from fertile hyphae and supporting a broom-like branch.

3.4 Broomra penicilus

In Penicillium, a broom-like cell structure formed at the top of the spore stalk that produces conidia.

Note. It consists of at least one or all of the following. phialide, peduncle, quasi-branch and collateral branches.

3.5 phialide

Specialized fertile cells of Penicillium that produce conidia.