

Japan  
Food  
Research  
Laboratories

## Japan Food Research Laboratories

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### REPORT

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Requested by: Amano Enzyme Inc.  
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#### Identification of Fungus

1. Sample  
P-52

2. Purpose  
To identify the test sample.

3. Outline of method  
The test sample was inoculated onto various agar plates. After incubation, the fungal colonies grown on the agar plates were examined by macroscopical and microscopical observations.

4. Results

According to the macroscopical and microscopical characters, the test sample was identified as *Aspergillus melleus*. Characteristics of the test sample examined are shown in Table 1.

However, degeneration of its spore formation and considerable mutation of their conidiogenous cells and conidia (shape, surface etc.) were observed.

The colonies of *Aspergillus* sp. grown on the agar plates show white, yellow, brown-black or green colors. Conidiophores with a swollen apex (vesicle), metulae and phialides or phialides on the vesicle, conidia in dry chains are observed. *Aspergillus*, is very common and world-wide distributive and isolated from soil, cereals, foods and air.

*A. melleus* is as a member of sect. *Circumdati*, subgen. *Circumdati* (= *Aspergillus ochraceus* group *sensu* Raper and Fennell) and its aspergilla are biserial (metulae and phialides are produced). It is world-wide distributive and isolated from soil, soybean and date fruits.

Table 1. Characteristics of the test sample

Item	Results
Colony growth-rate	
CYA 25°C, 7days	33~35 mm diam.
CzA 25°C, 7days	21~23 mm diam.
MEA 25°C, 7days	28~34 mm diam.
PDA 25°C, 7days	27~32 mm diam.
CYA 37°C, 7days	no growth
CzA 37°C, 7days	no growth
MEA 37°C, 7days	no growth
PDA 37°C, 7days	no growth
Colony surface color	
CYA	white
CzA	light yellow~grayish yellow
MEA	pale yellow
PDA	pale yellow
Reverse color	
CYA	pale yellow~light yellow
CzA	yellowish white
MEA	pale yellow
PDA	pale yellow
Conidial heads	radiate~splitting into columnar
Conidiophores	hyaline~pale brown, roughened, 330~980 $\mu\text{m}$ $\times$ 7~9 $\mu\text{m}$ diam.* <sup>1</sup>
Vesicles	globose~flask-shaped, with conidiogenous cells over their entire surface, 17~32 $\mu\text{m}$ diam.* <sup>1</sup>
Metule	6~11 $\mu\text{m}$ $\times$ 3~6 $\mu\text{m}$ * <sup>1</sup>
Phialides	ampulliform, 7~11 $\mu\text{m}$ $\times$ 2~3 $\mu\text{m}$ * <sup>1</sup>
Conidia	hyaline, globose~subglobose, smooth~rugose, 2~4 $\mu\text{m}$ diam.* <sup>1,2</sup>
Sclerotia	not formed

CYA: Czapek yeast autolysate agar plate

CzA: Czapek Dox agar plate

MEA: Malt extract agar plate

PDA: Potato dextrose agar plate

\*1 Fig. 1

\*2 Fig. 2

## 5. References

- Raper, K.B. and Fennell, D.I.: "The genus *Aspergillus*" (1965) Williams and Wilkins.
- Samson, R.A. and Pitt, J.I.: "Modern Concepts in *Penicillium* and *Aspergillus* Classification" (1989) Plenum Press.
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- Christensen, M.: *Mycologia*, 72, 210-225 (1982).

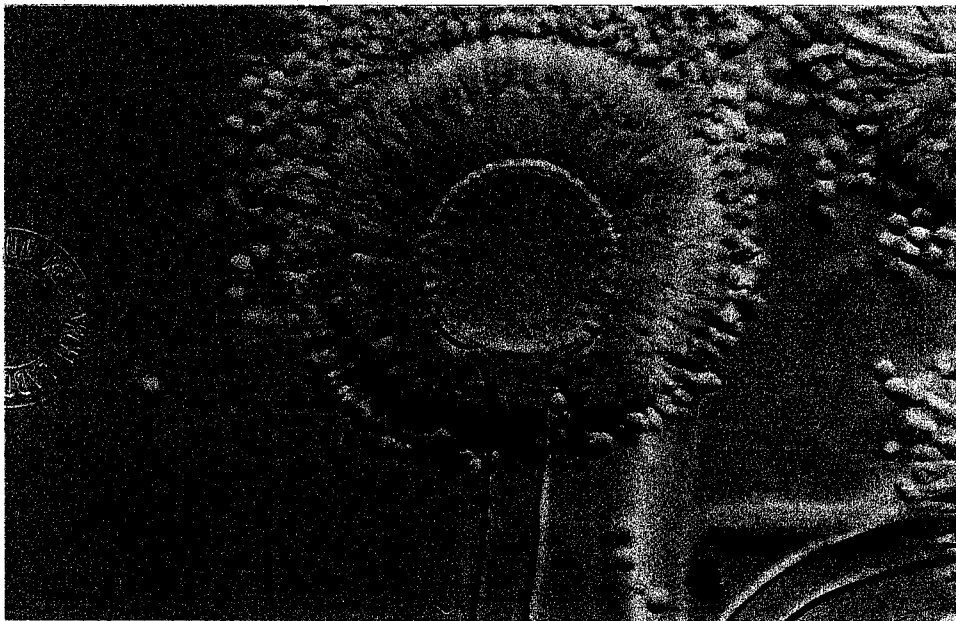


Fig. 1. A micrograph of conidiophores and conidiogenous cells of the test sample (LM, ×920) [Czapek Dox agar plate]

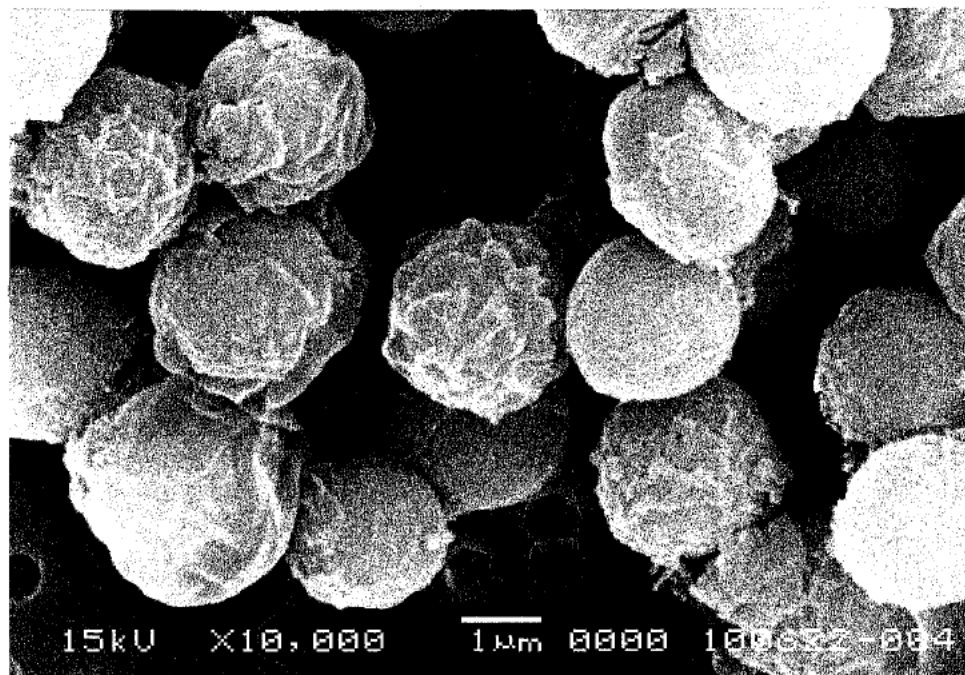


Fig. 2. An electron micrograph of conidial surface of the test sample (SEM)



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