



## A New Species of *Aspergillus*

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### Abstract

A new species of *Aspergillus* was isolated from the hill meadow soil in Tianzhu, Gansu. On the Czapek's medium at 20°C it produced branching conidiophores, heads pure yellow, hypha septate, footcell not inflating. Sterigmas were in two series and primary sterigmas were approximately triangle on which 4 bottle structure second sterigmas were present. At 25°C colony was white and produced abundant sclerotia instead of branching conidiophores. According to the morphological and culture characters, it should belong to *Aspergillus*. Through compared with similar species; here it was considered as a new species of *Aspergillus*. Therefore, it was named *Aspergillus racemosus* sp.n. Type specimens of the new species are deposited in the microbiological lab of Tianshui Normal University.

**Keywords:** *Aspergillus*, Branching conidiophores, *Aspergillus racemosus*

The Jing-qiang River in Tianzhu lies to the northwest of Wushao Mountain, the annual average, temperature is -0.3°C. The annual rainfall is 416mm. Soil is hill meadow soil. A strain of *Aspergillus* was isolated from the soil. Optimum growth temperature was 20°C. On the Czapek's medium, it formed milky white colony 10 days, colonial diameter 1.5cm, height 1.0cm, hyphae close and produce orange water soluble pigment in the medium. Hyphae have septum, diameter 2-3µm, footcell not inflating, and shape as Fig.1. 15 days, it began to produce pure yellow conidial heads in the centre of the colony. The branching conidiophores conidiophore hyaline, surface smooth, length 3-4 mm, diameter 5.6-6.5µm, bifurcate and no septate, as Fig.2. The conidial heads were close globose, radiate, outer diameter 150-250 µm. Vesicle was globe, diameter 54.5-55.0 µm. The primary sterigms were approximately triangles, length 7 µm, 4 bottle structure second sterigms were present, size 7.6×1.5-2.0µm. Two series sterigma were pure yellow or yellow brown. Conidia were approximate globose, diameter 2.3 µm, surface rough (fig.3). Incubated in the Czapek's liquid medium 10 days, detected with FeCl<sub>3</sub>, there was not aspergillus acid.

On the Czapek's medium, incubated at different temperature the growth state was as Table 1. It could be seen that the best state was at 20°C, hyphae vigorous. Above 20°C though hyphae spread fast, it was relatively thin and weak as table 1.

At 25°C it could grow on different mediums: the Czapek's medium, malt extract medium and potato agar medium. On the malt extract medium it grew faster than on the others, 10 days the colonial diameter was 2.5 cm, milky white, close and thriving. The back of colony was white grey and radial winkle, sclerotia were relatively abundant. Only on the Czapek's medium it could produce orange water soluble pigment. On the potato agar medium, colony was close, growth was slower than that on the malt extract medium. The colonial and colour morphological characters were similar to that on the malt extract medium.

The strain had the outstanding characters of *Aspergillus* and was identical with the characters of *Aspergillus ochraceus* group. But it was apparently different to the species of the group that had been reported. According to the morphological and culture characters, it should belong to *Aspergillus*. Through compared with similar species as table 2, it was considered as a new species of *Aspergillus*. It was named *Aspergillus racemosus* sp.nov.

### References

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Table 1. Morphological Characters at Different T. on Czapek's Medium\*

T. °C	Colonies (diameter) cm	Colour	Heads	characters of the colonies	Sclerotia
8	0.8	pure yellow	+	close and high	–
12	1.0	pure yellow	+	close and high	–
15	1.2	pure yellow	+	close and high	–
20	1.2	pure yellow	+	close and high	–
25	2.2	milky white	–	disperse and flat	+
30	1.6	milky white	–	disperse and flat	+
37	1.3	milky white	–	disperse and flat	+

\*15days. relative humidity 70%.

Table 2. Comparison of Similar Species \*

Name	Colong	Sterigs	Conidiophores heads	Sclerotia	Conidium
<i>A. sulphureus</i>	4.2	two series	milky white, disperse d.<400µm	milky white, light yellow	spindie young, globe in age 2.0~2.5µm
<i>A. sclerotiorus</i>	4.6	two series	light yellow, semiglobose d.55~0µm	white oryage, globose	globose, smooth 2.0~3.0µm
<i>A. alliaceus</i>	6.5	two series	brown yellow, globose d.100~1000µm	black, oval d.500~700µm	oval, smooth 3.7×2.0 µm
<i>A. auricomus</i>	2.6	two series	globose, radiative d.350~500µm	black, globose d.500~700µm	oval, smooth 2.75~3.5µm
<i>A. melleus</i>	2.6	two series	globose, pillar in age, pure yellow d.350~400µm	brown, globose d.400µm	globose, smooth 3.0~3.5µm
<i>A. ochlanceus</i>	3.6	two series	globose, pillar in age d.200~500µm	purplish red, globose d.900~1000µm	globose, smooth 2.5~3.5µm
<i>A. elegans</i>	2.7	two series	globose, pillar in age d.200~500µm	yellow brown, globose b.600~700µm	oval smooth 3.2~4×2.5~3.2µm
<i>A. ostianus</i>	2.9	two series	globose, pillar in age d.400~500 µm	black, globose d.500~1000µm	oval, rough 4.0~4.5×1.3~3.5µm
<i>A. petrakii</i>	3.3	two series	globose, radiative d. <100µm	no	eupital smooth 2.5~4.0µm
<i>A. flavus</i>	3.3	one or two series	globose, radiative d.250~300µm	brown, globose d.800~1000µm	globose rough 3.5~5.0µm
<i>A. racemosus</i> (20°C)	2.0	two series	pure yellow, globose, radiative, d.250~300µm	no	flat globose 2.4µm
<i>A. racemosus</i> (25°C)	3.5		no	grey beck, oval d.600~1500×400 ~800µm	no



Figure 1. Footcell not Inflating



Figure 2. Branching Conidiophores



Figure 3. Conidia