

## Note

# Notes on *Ordus chiayiensis* in Tsukuba

Tsuneo Watanabe<sup>1)</sup>, Yoshio Watanabe<sup>2)</sup>, Takema Fukatsu<sup>3)</sup> and Ryuichiro Kurane<sup>3)</sup>

<sup>1)</sup> Bioconsortia Program Laboratory, National Institute of Bioscience and Human-Technology, Agency of Industrial Science and Technology, 1–1, Higashi, Tsukuba, Ibaraki 305–8566, Japan

<sup>2)</sup> Central Research Laboratories, Mercian Corporation, 9–1, Johan 4 Chome, Fujisawa, Kanagawa 251–0057, Japan

<sup>3)</sup> National Institute of Bioscience and Human-Technology, Agency of Industrial Science and Technology, 1–1, Higashi, Tsukuba, Ibaraki 305–8566, Japan

Accepted for publication 11 May 1999

***Ordus chiayiensis* isolated from discolored red pine needles is redescribed and illustrated.**

Key Words—identification; *Ordus*; *Ordus chiayiensis*.

A new species of *Tripospermum* Speg. was isolated in Chiayi, Taiwan by Matsushima (1983) and named *T. chiayiense* Matsushima. One month later, the new genus *Ordus* was established by Ando and Tubaki (1983) on the basis of the conidial morphology with the main axis developing three arms from the top of the axis, and included one species, *O. tribrachiatus* Ando & Tubaki.

Later, *O. tribrachiatus* and *T. chiayiense* were found to be conspecific, and a new combination, *O. chiayiensis*, was proposed by Ando et al. (1997).

During an etiological study of collapsed red pine (*Pinus densiflora* Sieb. et Zucc.) with discolored needles at Tsukuba, Japan, fungal isolates with characteristic colonies were obtained by plating discolored, washed red pine needles on water agar and isolating single hyphal tips elongated from these needles onto potato-dextrose agar (PDA) (Fig. 1).

The colonies developed slowly and were non-aerial, dense, very restricted, raised and dark grey to black. The fungus also sporulated well on water agar at 25°C and was identified as *Ordus chiayiensis* according to earlier works (Matsushima, 1983; Ando and Tubaki, 1983; Ando et al., 1997).

Although this fungus appears to be commonly present in red pine needles in Tsukuba, no other record on this fungus has been available. Thus, it is reported together with photomicrographs of its morphology in this report.

***Ordus chiayiensis*** (Matsushima) Ando, Tubaki et Katumoto in Mycoscience 38: 95, 1997. Figs. 1–7

Colonies on potato-dextrose agar (PDA) after incubation for 12 d at 25°C 6.5 (6–7) mm in diam and at 20°C 3.8 (3–5) mm, black, non-aerial, raised, very restricted, reverse black. Conidiophores absent. Conidia solitary, blastosporous, micronematous, hyaline or subhyaline, de-

veloped directly from hyphae, with the main axis extending a bud-like first arm of the conidium from the top, followed by a second one on the same level, and finally the third central one.

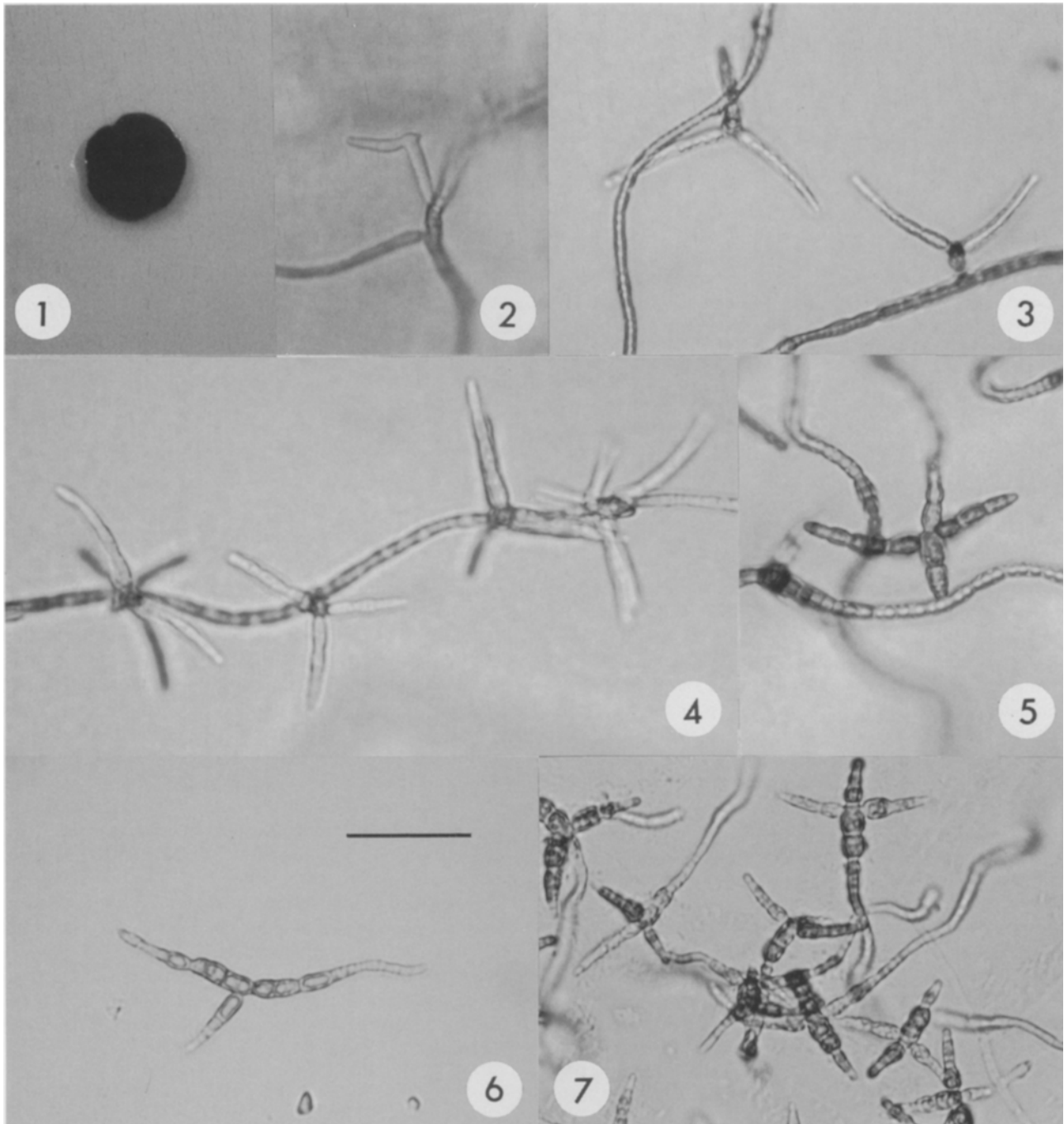
In mature conidia, the three arms were each separated from the axis by a constriction; the main axis was mostly 1–2-septate, usually 9–22 µm long, 2.4–8 µm wide; the arms were (0–)1–4-septate, 9–28 µm, mostly 3–4 µm wide, composed of cells 4–8 µm long, constricted at the septum. Arthrospore-like septations developed directly on hyphae in old cultures.

Habitat: From collapsed red pine with discolored needles, Tsukuba, Ibaraki, Japan.

Material examined: Japan, Ibaraki, Tsukuba, cultures from collapsed red pine needles, TW 98-7, 9 Feb. 1998, T. Watanabe. Living cultures deposited at the Gene Bank, National Institute of Biological Resources, Ministry of Agriculture, Forestry and Fisheries (MAFF 237777) at Tsukuba, Ibaraki, Japan and at American Type Culture Collection (ATCC 204161).

The phialoconidia described in *O. chiayiensis* (Ando and Tubaki, 1983; Ando et al., 1997) were not found in the present fungus or in *Tripospermum chiayiense* (Matsushima, 1983). In addition, the mature conidia were not easily detached by flooding PDA cultures with water. Conidia germinated by extending germ tubes from the axis of detached conidia (Figs. 6, 7).

Acknowledgements—Financial support of this study by Bioconsortia Program, New Energy and Industrial Technology Development Organization (NEDO) is greatly acknowledged as a part of the Project titled “Development of technology of Bioconsortia and utilization of biological resources” in Industrial Science and Technology, Agency of Industrial Science and Technology, Ministry of International Trade and Industry of Japan.



Figs. 1–7. Morphology of *Ordus chiayiensis*

1. Twelve-d-old colony at 25°C on PDA. 2. An immature conidium with one side arm. 3. Two immature conidia with two and three arms. 4. Several conidia on a single hypha. 5. A mature conidium on a hypha. 6. Germination of a detached conidium with two arms, extending germ tubes from a side arm and the main axis. 7. Germination of mature conidia extending hyphae from side arms and axes.

Scale bar in Fig. 6, 14 mm for Fig. 1; 30  $\mu\text{m}$  for Figs. 2–7.

#### Literature cited

- Ando, K., Tubaki, K. and Katumoto, K. 1997. *Ordus chiayiensis*, a new combination of hyphomycete. *Mycoscience* **38**: 95.
- Ando, K. and Tubaki, K. 1983. *Ordus*, a new genus of Hyphomycetes. *Trans. Mycol. Soc. Japan* **24**: 271–276.
- Matsushima, T. 1983. *Matsushima Mycological Memoirs*. No. 3, p. 90. Matsushima Fungus Collection. Kobe, Japan.