THE DISTRIBUTION OF HETEROCEPHALUM AURANTIACUM

一種不完全菌 Heterocephalum aurantiacum 的分佈

Chiu-Yuan Chien[1]

簡 秋 源

中 文 摘 要

在美國東南部的農耕地和森林土壤菌類研究調查中，從喬治亞大學校區內的土壤分離得到一種不完全菌，它具有橙黃色的菌頂，其上帶有放射狀的不育性長刺，菌頂著生在菌束狀的孢子柄上，該菌已被鑑定爲Heterocephalum aurantiacum Thaxter。

該菌首次於一八九一年在牙買加被發現，以後一直被認爲是熱帶菌種，近幾年來兩次的發現則都在北緯27°與34°之間的溫帶地區。

此菌已被移植在各種不同的人工培養基上，並放置於室溫中培養，結果顯示有適應室溫之習性，因此該菌已被推測爲仍有可能分佈在靠近溫帶附近的其他地區。因爲此菌之分生孢子成熟時，係一種乾性孢子，可藉空氣之流動而傳播之。

A survey of soil fungi in cultivated and forest soils of the Southeast has yielded a fungus having orange-yellow sporiferous heads with radiating setae, borne on synnematous stalks (Fig. 1). This fungus was isolated from soil collected on the campus of the University of Georgia and identified as Heterocephalum aurantiacum Thaxter, (Strain No. 618). The genus Heterocephalum is monotypic.

According to Thaxter (7) this species has been found only twice. His original isolation was made during the winter of 1890-1891 from

1. Visiting Associate Professor, Mycology Laboratory, Institute of Biological Sciences, National Taiwan Normal University, Taipei, Taiwan, The Republic of China.

toad dung collected in Jamaica, and the second isolation was made in 1902 from goat dung send from the Philippine Islands. Not until 1952 did Raper & Fennell (6) report, in detail, the characteristics of this species obtained from Liberian soil. In 1954, Farrow (2) reported the same species from three of 21 soil samples at Barro Colorade Island in Panama. More recently, Meyer (4) has found the fungus from soil in Congo in Africa in 1959. Indoh et al. (3) have reported it from cockroach dung collected at Shuri, Okinawa Island in 1964. Although this species has been reported from six localities within the last 74 years, they are all warm or tropical areas (Table 1). The present collection, an American isolate, is significant since it is the northern most locality (latitude 34 N) reported and extends the range considerably.

Table 1. Localities from which Heterocephalum aurantiacum has been isolated.

Year	Worker	Place	Latitude N	Sample
1891	Thaxter R.	Jamaica	18	Toad dung
1902	Thaxter R.	Philippin	5-17	Goat dung
1952	Raper & Fennell	Liberia	6	Soil
1954	Farrow, W. M.	Panama	8	Soil
1959	Meyer, J. A.	Congo	Equator	Soil
1964	Indoh et al.	Okinawa	27	Cockroach dung
1970	Chien, C. Y.	Georgia	34	Soil

Heterocephalum aurantiacum has been isolated from either dung or soil, indicating a specific ecological habit. However, whether

the species is coprophilous or not, the cultures are easily grown on various media; synthetic mucor agar, V-8 juice agar, carrot agar, oat meal agar, potato dextrose agar, yeast extract agar, dung agar and corn meal agar. Few vegetative mycelia were formed on corn meal agar and sparse fruiting structures were observed at 20 C after 3 weeks.

Numerous attempts were made by Indoh et al. (3) to deal with culture conditions by growing the fungus on various media at different temperatures. They indicated that cultures grow best on carrot agar (CA) at 20 C with an optimum temperature for sporulation on CA between 20-30 C. The same results were obtained by the present writer. In view of the temperature studies, Indoh suggested that it might be a fairly common species in the temperate zone.

The taxonomic position of the genus Heterocephalum has been subjected to many different treatments. Thaxter pointed out that it should be placed in the Hylostilbeae of the family Stilbaceae as Saccardo did. Raper & Fennell, on the other hand placed it in subfamily Aspergillae in the Moniliaceae since the fungus possesses the entire sporiferous tissue developing from a single fertile hyphe, as does Asperillus. Indoh emphasized that this species can be included in Hylostilbaceae-Amerosporae, according to Morris (5). Recently, Barron (1) classified it in the Phialosporae since the sporogenous cells in H. aurantiacum are phialides.

The conidia of H. aurantiacum are dry and the sporiferous heads are more or less deciduous when mature. Both Thaxter and Raper & Fennell have suggested that the complex development of the corticating sterile hyphae is related to spore dispersal.

Dried petri dish cultures of the strain and pure cultures (No.618) have been deposited in the culture collection of the Mycology Laboratory, Institute of Biological Sciences, National Taiwan Normal

University.

LITERATURE CITED

1. Barron, G. L. 1968. The genera of Hyphomycetes from soil. Williams and Wilkins Co., Baltimore, Md. 364 p.
2. Farrow, W. M. 1954. Tropical soil fungi. Mycologia 46: 632-646.
3. Indoh, H., and A. Oyatsu. 1965. On Heterocephalum aurantiacum Thaxter, newly found in Okinawa. Trans. Mycol. Soc. Japan 5: 79-82.
4. Meyer, J. A. 1959. Moisissures du sol et des litières de la region de Yangambi (Congo Belge). Publ. Inst. Nat. Agron. Congo Belge, Sér. Sci., 75: 1-211.
5. Morris, E. F. 1963. The Synnematous Genera of the Fungi Imperfecti. West. Ill. Univ. Biol. Sci. Publ. No. 3.
6. Raper, K. B., and D. I. Fennell. 1952. Two noteworthy fungi from Liberian soil. Amer. J. Bot. 39: 79-86.
7. Thaxter, R. 1903. New or peculiar North American Hyphomycetes. III. Bot. Gaz. 35: 153-159.

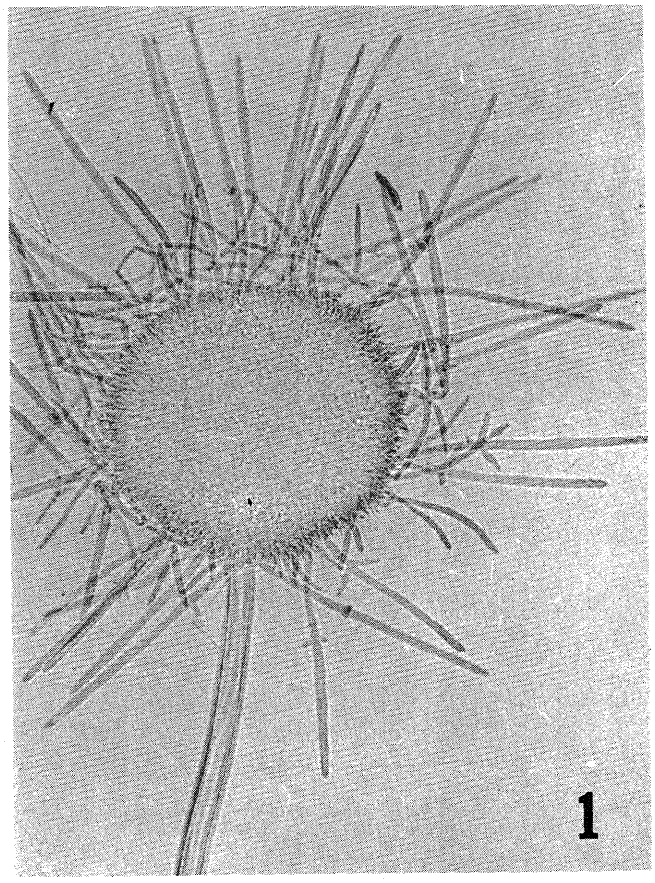

Fig. 1. Heterocephalum aurantiacum. Photograph showing general characteristics of the immature sporiferous head. X 1100.