

FUNGI INHABITING ON *SCHOENOPLECTUS TRIQUETER* (L.) PALLA⁽¹⁾ (I)

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Abstract: Three species of fungi, i. e., *Hyalotia lateripes* (Ellis & Ev.) Guba, *Pestalotia palmarum* Cooke, and *Polyschema olivacea* (Ellis & Everh.) M. B. Ellis inhabiting on *Schoenoplectus triqueter* (L.) Palla are described. *Hyalotia lateripes* and *Polyschema olivacea* are new records from Taiwan, and *Schoenoplectus triqueter* (L.) Palla is recorded as the new host of these fungi in Taiwan.

INTRODUCTION

Current concern on the economic importance of *Schoenoplectus triqueter* (L.) Palla, stimulate the artificial cultivation of this grass species on the wet sandy soil of central coastal area of Taiwan. However, the straws of *S. triqueter* during the post-harvest storage period, are frequently infected by several fungi, and resulted the serious deterioration of straws as well as a great economic loss. The basic survey of mould flora on *S. triqueter* is, thus, urgently needed.

Sawada in 1928 and 1943, reported *Puccinia scripi* Dc. and *P. scripi-triqueteris* Sawada respectively infecting on leaves of *S. triqueter* in Taiwan. *Puccinia obtecta* Pk. also attack *S. triqueter* in Mainland China (Tai, 1979). The fungi so far discovered on *S. triqueter* in Taiwan were exclusively those of obligate parasites which would not cause any serious problem for the storage straws after harvest. The present investigation aims at to obtain a thorough picture of floristic distribution of storage fungi on straws of *S. triqueter* under the humid, warm, climatic environment of Taiwan.

MATERIAL AND METHODS

The straws of *Schoenoplectus triqueter* were collected from the field at Yuann-Lii, on June 1, 1981. The surface of culms was sterilized by 0.1% Hg₂Cl₂ solution, and then soaked in the sterilized distilled water at 25°C, for a week.

New-borne fungi were found on the surface of culms and water-surface. Under dissecting microscope, the spores and hyphae were picked out by transferring needle, and then inoculated in PDA, at 25°C.

RESULTS

Several fungi were isolated, and identified. Some of these fungi are new records to Taiwan fungal flora and *Schoenoplectus triqueter* (L.) Palla is a new host of all the fungi described in this paper.

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DESCRIPTION OF SPECIES

1. *Hyalotia lateripes* (Ellis & Ev.) Guba, Monograph of *Monochaetia* and *Pestalotia*, p. 291, 1961. (Fig. 1)

Pestalotia lateripes Ell. & Ev., Jour. Mycol. 7:133, 1892; Syll. Fung. 11:578, 1895.

The fruiting pustule is a globose or flask-shaped pycnidium, with long neck and ostiole, blackish brown, 160–440 μ in diameter, 210–650 μ in height, neck up to 300 μ . The conidia are cylindrical-fusiform, 3–5 septa (usually 3 septa), hyaline or greenish, 17–22 \times 3–3.5 μ (including the length of apical conical beak). Apical conical beak of conidia, hyaline (without cellular content), 2–3 μ long, with 3 filiform setulae (sometimes 2), 15–20 μ long (rarely up to 40 μ). Central parts of conidia compose with 2–4 cells (usually 2 cells), with hyaline or greenish cell contents. Basal cell of conidia, hyaline or greenish, truncate with an oblique eccentric pedicel, 6–10 μ long (rarely up to 15 μ), filiform.

Specimen Examined: MIAU-LIH: Yuann-Lii, on dead culms of *Schoenoplectus triqueter* (L.) Palla, June 21, 1981, WS-001.

Distribution: Taiwan, U. S. A.

Notes: Genus *Hyalotia* is segregated from genus *Pestalotia* by Guba (1961). The genus characterized by having hyaline or greenish conidia, narrow-fusiform; pointed apice crested with 2 or more, usually 3 setulae; basal cells truncate at base, resting obliquely on hyaline short, filiform pedicels. *Hyalotia lateripes* was described on dead legumes of *Cassia chamaecrista* from U. S. A. and issued in Ell. & Ev. N. Am. Fungi No. 2786, (Guba, 1961). *Schoenoplectus triqueter* (L.) Palla is a new host species of this fungus, and *Hyalotia lateripes* is considered as a new record from Taiwan. *Hyalotia lateripes* can be inoculated on sterile dead culms of *Schoenoplectus triqueter*, and grow well on potato dextrose agar or extract of dead culms of *Schoenoplectus triqueter*. The fungus also can grow on dead culms of *Cyperus malaccensis* Lam. by artificial inoculation and produce abundant pycnidia. Conidia: 17–22 \times 3–4 μ , setulae of apical conical beak: 20 μ long, basal pedicel: 10–15 μ long.

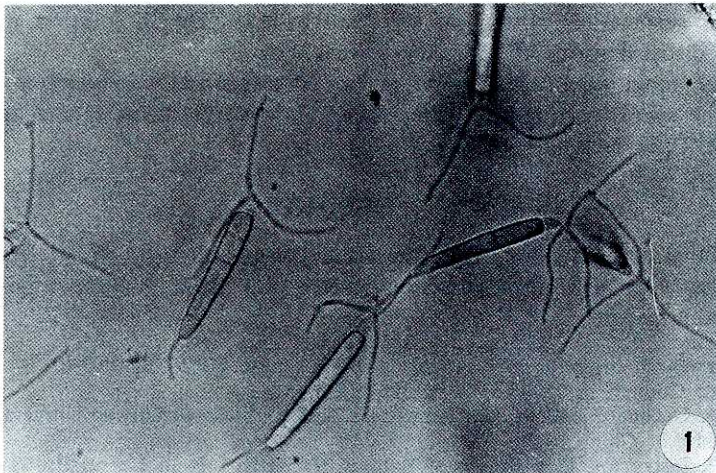


Fig. 1. Conidia of *Hyalotia lateripes*. ($\times 600$)

2. *Pestalotia palmarum* Cooke, Grevillea 4:115, 1875. (Fig. 2)

P. brevipes Prill. & Del., Bull. Soc. Mycol. Fr. 10:84–85, 1894.

P. fuscescens Sor., Z. Pflanzenkr. 2nd ed., 2:399–400, 1886.

P. palmicola Sacc. & Syd., Syll. Fung. 14:1030, 1899.

P. arengae Lund, Bot. Tidsskr. 43:306–308, 1935.

P. taslimiana Mund. & Kheswalla, Mycologia 34:310, 1942.

Pestalotiopsis palmarum (Cooke) Stey., Bull. Jard. Bot. État Bruxelles 19:322, 1949.

The fruiting pustule is a scattered or gregarious, globose or subglobose, yellowish brown Pycnidium, up to 150 μ in diameter. Conidia Straight or curved, 5-celled, 16–23 \times 5–6.5 μ ; intermediate colored cells usually versicolorous, the upper two umber, the lowest olivaceous, sometimes equally colored, 10.5–14 μ , only slightly constricted at septa; exterior cells tapering; setulae 2, usually 3, up to 14 μ , some slightly longer, divergent; pedicels short, up to 4 μ long.

Specimen Examined: MIAU-LIH: Yuann-Lii, on dead culms of *Schoenoplectus triqueter* (L.) Palla, June 21, 1981, WS-002.

Notes: The hosts of *Pestalotia palmarum* ever recorded in reference which we can trace are *Cocos nucifera* L. and other species of Palmaceae (Guba, 1961; Sawada, 1943; List of Plant Diseases in Taiwan, 1979). *Schoenoplectus triqueter* (L.) Palla is a new host species of this fungus in Taiwan. *Pestalotia palmarum* can be inoculated on sterilized culms of *S. triqueter*, and grow well on potato dextrose agar or extract of dead culms of *S. triqueter*. The fungus also can grow on dead culms of *Cyperus malaccensis* Lam. by artificial inoculation and produces abundant pycnidia.

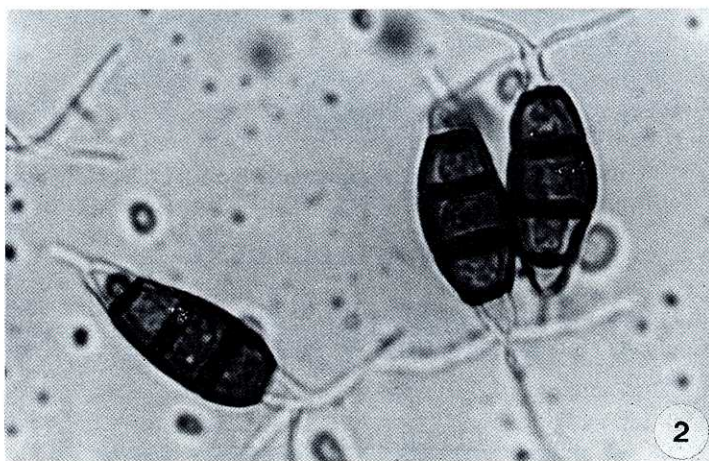


Fig. 2. Conidia of *Pestalotia palmarum*. ($\times 1800$)

3. *Polyschema olivacea* (Ellis & Everh.) M. B. Ellis, More Dermatiaceous Hyphomycetes, p. 372, 1976. (Fig. 3)

Clasterosporium olivaceum Ellis & Everh., Proc. Acad. Nat. Sci. Philad., 1893:463, 1894.

Colonies effuse, dark olivaceous to blackish brown, velvety. Hyphae pale to mid brown, smooth, 2–4 μ thick. Conidiogenous cells discrete, monotretic, spherical or subspherical, flattened dorsiventrally, dark brown, verruculose, 7–8.5 μ diam. Conidia mostly more or less

cylindrical, 2-8 septa, often constricted at the septa, pale to mid golden brown, verruculose, $16-36 \times 5-8 \mu$.

Specimen Examined: MIAU-LIH: Yuann-Lii, on dead culms of *Schoenoplectus triqueter* (L.) Palla, June 21, 1981.

Distribution: Taiwan, U. S. A.

Notes: According to M. B. Ellis (1976), the conidia of *Polyschema olivacea* are 2-7 septa, but by our observation, we found the conidia of this specimen with more septa up to 8. *Polyschema olivacea* was described on old culms of *Zea mays* from U. S. A. (Ellis, 1976). *Schoenoplectus triqueter* (L.) Palla is a new host species of this fungus. The species of *Polyschema* that has been recorded in Taiwan is *Polyschema toruloides* (Matsushima, 1980), and therefore, *Polyschema olivacea* is considered as a new record.



Fig. 3. Conidia of *Polyschema olivacea*. ($\times 700$)

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