



Microcyclus pruni sp. nov. hyperparasitized by *Paranectriella arcuata*

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Abstract. *Microcyclus pruni* sp. nov. parasitic on *Prunus phaeosticta* var. *ilicifolia* in Taiwan and its hyperparasite, *Paranectriella arcuata* are described and illustrated.

Key words: Hyperparasite; *Microcyclus pruni* sp. nov.; *Paranectriella arcuata*.

Introduction

During our survey of ascomycetous fungi collected from Taiwan, we found a species of *Microcyclus* Sacc. on *Prunus phaeosticta* var. *ilicifolia*, which was morphologically distinct from the known species of this genus. About twenty two species of *Microcyclus* have been reported (Müller & Arx, 1962; Müller & Sanwal, 1954; Sivanesan, 1975), and this is the first time a *Microcyclus* species reported as parasitizing a host plant of the family Rosaceae. On account of the species delimitation of the genus *Microcyclus* based on host specialization, this fungus is described as a new species. On the stromata of this *Microcyclus* species, a pale orange hyperparasite was found and identified as *Paranectriella arcuata* (Hansf.) Rossman, a member of the family Tubeufiaceae. Six species and one variety of *Paranectriella* have been reported (Rossman, 1987; Pirzowski, 1977), and the hosts include *Asterina* (Hansford, 1946), *Auerswaldia* (Hennings, 1904), *Bagnisiopsis* (Hennings), *Ctenoderma* (Hansford, 1946), *Hemileia* (Hansford, 1946), *Irene* (Hansford, 1946), *Meliola* (Stevens, 1918) and *Microthyrium* (Stevens, 1918), but never *Microcyclus*. This hyperparasite is also a new record for Taiwan.

Materials and Methods

The specimens of *Microcyclus* on living leaves of *Prunus phaeosticta* var. *ilicifolia* were collected from Piluchi, Nantou Hsien, in Taiwan. Thin microtome sections of the specimens were made and mounted on slides for light microscope observation. The morphological characters of the fungi were studied and illustrated.

Results

***Microcyclus pruni* Li et Hsieh, sp. nov.** (Fig. 1. A-D).

Maculae nullae. Stromata externa, amphigena, atra, puntiformia irregulariter compladiscreta, super totum paginam folii laxe dispersa. Loculi 7-11 in unaquaque stromate, subglobosi ad ovoidei, ostiolati, 55-133 μm lati, 86-156 μm alti. Asci clindrici ad subclavati, brevi-stipitati, bitunicati, apex roundati, octospori, 64-100 \times 10-15 μm . Ascosporae breve clavatae, extrema ambo rotundata, bicellularae, rectae vel leniter curvatae, cellulae superiore saepe leniter brevior et latior, cellulae inferiore attenuatae, biserialia, hyalinae, 18-20 \times 4 μm .

Habitat: In foliis vivis *Pruni phaeostictae* (Hance) Maxim. var. *ilicifoliae* Yamamoto (Rosaceae). Piluchi, Nantou Hsien, Jan. 8, 1990, leg. Li-Tzu Li, NCHUPP-2105, holotypus.

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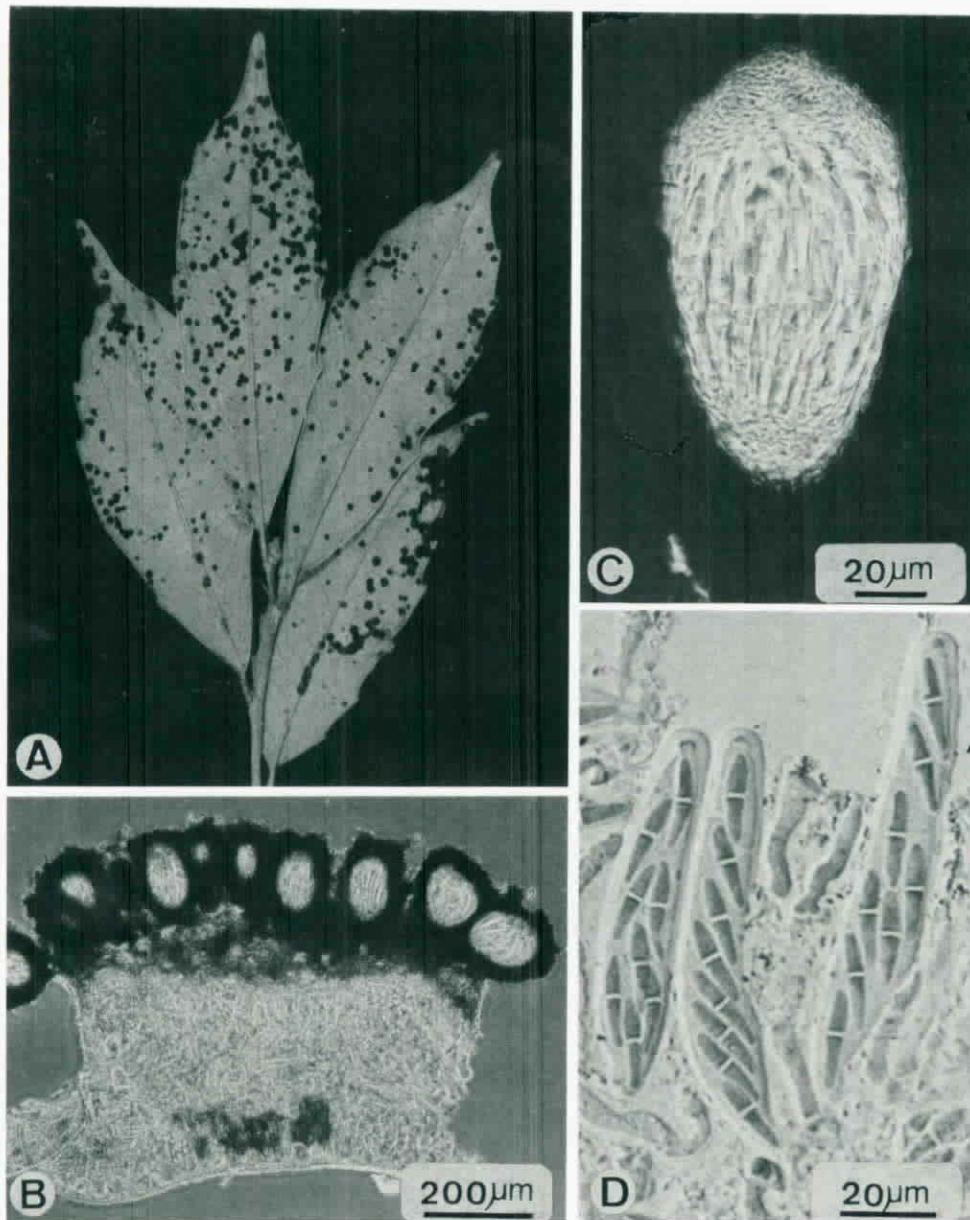


Fig. 1. *Microcylus pruni*. A. Stromata on lower surface of leaves; B. V.s. of stroma; C. Locule; D. Asci with ascospores.

Leaf spots none. Stromata external, amphigenous, black, punctiform, irregularly flattened-subglobose, up to 2 mm wide, 219–328 μm high, with slightly prominent ostioles, discrete, loosely scattered over the whole leaf surface. Locules 7–11 in each stroma, subglobose to ovoid, ostiolate, 55–133 μm wide, 86–156 μm high. Asci cylindrical to subclavate, short-stalked, bitunicate, rounded at the apex, 8-spored, 64–100 \times 10

–15 μm . Ascospores short clavate, rounded at both ends, 2-celled, straight or slightly curved, the upper cell shorter and wider than the lower cell which often narrows to an attenuating tip, biseriate, 18–20 \times 4 μm .

Habitat: On living leaves of *Prunus phaeosticta* (Hance) Maxim. var. *ilicifolia* Yamamoto (Rosaceae), Piluchi, Nantou Hsieh, Jan. 8, 1990, leg. Li-Tzu Li, NCHUPP-2105, holotype.

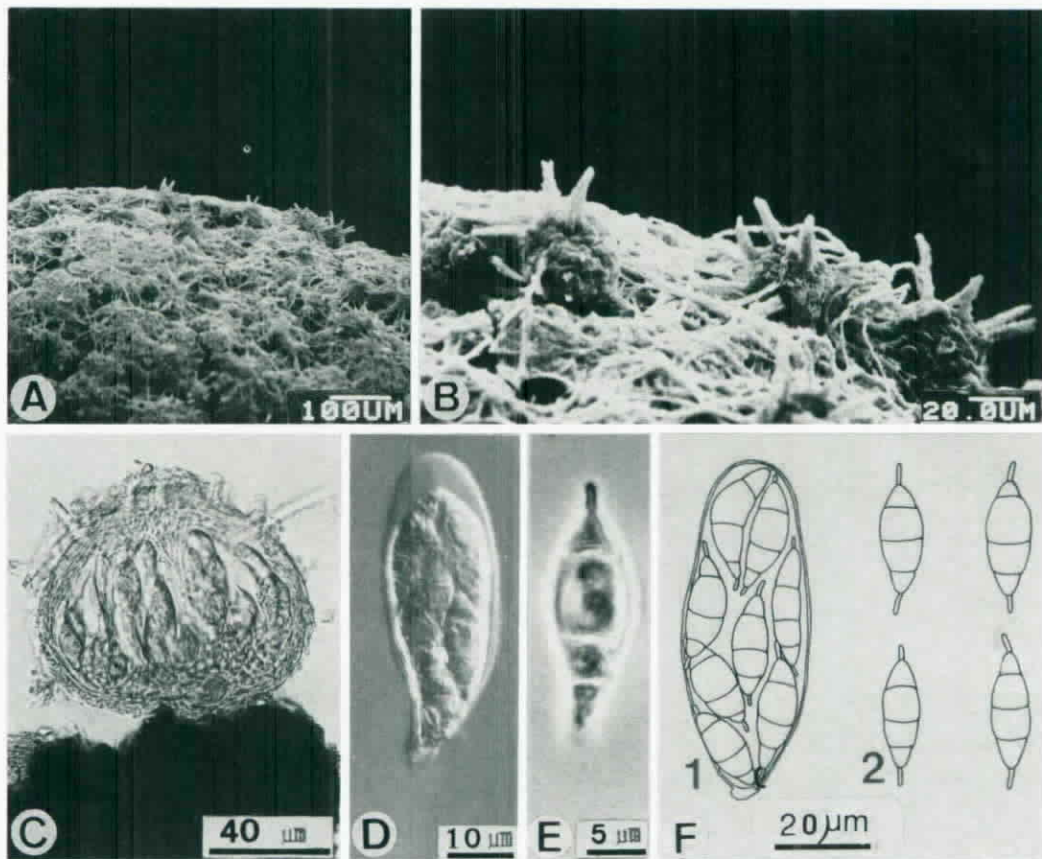


Fig. 2. *Paranectriella arcuata*. A-B, Pseudoperithecia formed on a stroma of *Microcyclus pruni* parasitizing *Prunus phaeosticta* var. *ilicifolia*; C, V.s. of setose pseudoperithecium; D, Bitunicate ascus; E, Ascospore with appendages at both ends; F-1, Ascus with eight ascospores; F-2, Ascospores.

Distribution: Taiwan.

Paranectriella arcuata (Hansf.) Rossman (Fig. 2, A-F)
Mycol. Pap. 157: 24 (1987).
= *Calonectriella arcuata* Hansf., Mycol. Pap. 15: 119
(1946).

Pseudoperithecia parasitizing on *Microcyclus*, numerous, loosely scattered, globose to subglobose, slightly ostiolate, pale orange, $70-90 \times 64-98 \mu\text{m}$. Ostioles $10-14 \mu\text{m}$ in diam. Setae over the surface loose, simple, straight, obtuse, thick-walled, $30-46 \times 3-4 \mu\text{m}$. Asci not numerous, bitunicate, long ellipsoid, wide clavate, rounded at the apex, with a short stalk, 8-spored, $40-76 \times 14-20 \mu\text{m}$, pseudoparaphysate. Ascospores biseriolate, fusiform, gradually attenuate at both ends, with a straight or slightly curved hyaline

cellular appendage at each end, 3-septate, very slightly constriction at the septa, hyaline, $30-34 \times 7-10 \mu\text{m}$. Appendages $3-5 \times 1.0 \mu\text{m}$.

Habitat: On *Microcyclus pruni* on living leaves of *Prunus phaeosticta* (Hance) Maxim. var. *ilicifolia* Yamamoto (Rosaceae).

Specimen examined: NCHUPP-2039, Piluchi, Nantou Hsien, June 29, 1989, leg. A. Sivanesan.

Distribution: Republic of South Africa, Taiwan, Uganda.

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Literature Cited

- Hansford, C. G. 1946. The foliicolous ascomycetes, their parasites and associated fungi. Mycol. Pap. 15: 1-240.
- Hennings, P. 1904. Fungi amazonici II. a cl. Ernesto Ule collecti. Hedwigia 43: 242-273.
- Müller, E. and J. A. von Arx. 1962. Der Didymosporen Pyrenomyceten Beitr. Kryptoga menflora Schweiz 11: 368-376.
- Müller, E. and B. D. Sanwal. 1954. Über die Gattungen *Microcyclus* Sacc., *Coccoidella* Höhn., *Coccodothis* Theiss. et Syd. und *Coccodothella* Theiss. et Syd. Sydowia (Ann. Mycol. ser. II) 8: 231-244.
- Pirozynski, K. A. 1977. Notes on hyperparasitic Sphaeriales, Hypocreales and hypocreoid Dothideales. Kew Bull. 31: 595-610.
- Rossmann, A. Y. 1987. The Tubeufiaceae and similar Loculoascomycetes. Mycol. Pap. 157: 1-71.
- Sivanesan, A. 1975. New ascomycetes and some revisions. Trans. Br. mycol. Soc. 65: 19-27.
- Stevens, F. L. 1918. *Meliola* parasites. Bot. Gaz. 65: 232.

Microcyclus 之新種及其超寄生菌 *Paranectriella arcuata*

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本文報告寄生於冬青葉桃仁 (*Prunus phaeosticta* var. *ilicifolia*) 葉片上之子囊菌 *Microcyclus* 新種及其超寄生菌 *Paranectriella arcuata*。 *Microcyclus* 新種之子座寬為 2 公釐，高為 219-328 微米，每一子座有 7-11 個子囊腔 (locule)，腔室寬 55-133 微米，高 86-156 微米，子囊大小為 64-100×10-15 微米，子囊孢子兩室，大小 18-20×4 微米。