

Cladosporium alliicola sp. nov. on *Allium victorialis* var. *platyphyllum*

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산마늘에서 분리한 新種 *Cladosporium alliicola*

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ABSTRACT: A species of *Cladosporium* isolated from *Allium victorialis* var. *platyphyllum* Makino differs from *C. allii* and *C. allii-cepae* by catenate, multiseptate conidia and aseptate conidiophores. Comparable *Cladosporium* spp. on other substrates are unknown. Therefore, this fungus must be considered as a new, undescribed species, viz. *Cladosporium alliicola* sp. nov.

KEYWORDS: *Allium*, *Cladosporium*, new species

A leaf blotch of *Allium victorialis* var. *platyphyllum* Makino was found at an experimental plot of Crop Experiment Station, Rural Development Administration, Suwon, Korea. The disease severely affected the plant by causing large leaf lesions (Fig. 3-a) and flower rot (Fig. 3-b, c) during the rainy season.

Initial symptoms appeared as small discolored yellowish spots. After the development of lesions, the affected areas became darker in color and enlarged along the main axis parallel to the leaf veins, sometimes appearing as dirty grayish lesions due to heavy fructification of the fungus. With further development, the central area became pale yellowish to ochraceous and disintegrated (Fig. 3-a). Sometimes the inflorescences were severely decayed and totally covered with a dark gray conidial mass (Fig. 3-b, c).

A species of *Cladosporium* was repeatedly isolated from the diseased leaves and inflorescences.

This fungus fits well with the genus *Cladosporium* sensu M.B. Ellis (1971) in having darkened protuberant hilum at each end or just at the base of conidia. It is close to *C. spongiosum* Berk. in the gross morphology of conidia, but readily differentiated by its aseptate conidiophores and larger conidia. Also, in comparing with *Cladosporium* spp. on *Allium* plants, the fungus differs from *C. allii* (Ellis & Mart.) Kirk & Crompton and *C. allii-cepae* (Ranoj.) M.B. Ellis by catenate, multiseptate conidia and aseptate conidiophores. *C. allii-cepae* has much wider, echinulate solitary conidia (Kirk & Crompton, 1984; Kirk, 1986b; Shin, 1995). *C. allii* usually has wider 1-3-septate conidia (Kirk & Crompton, 1984; Kirk, 1986a).

Cladosporium spp. on *Allium* plants

1. Conidia smooth, catenate, 0-7-septate; conidiophores aseptate *C. alliicola*

1.1. Conidia echinulate to minutely verruculose, singly, (0-)1-3-septate; conidiophores septate

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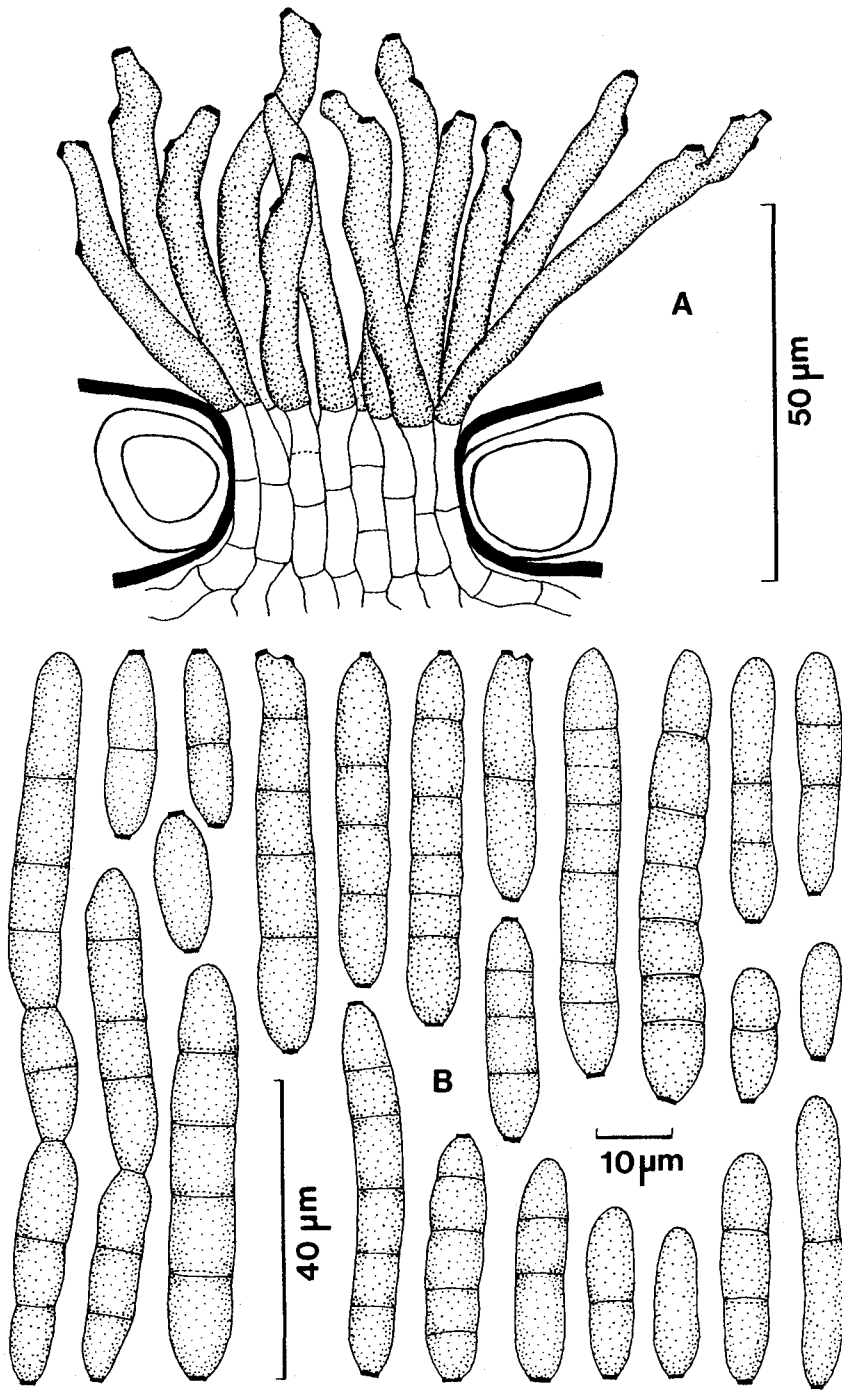


Fig. 1. *Cladosporium alliacola*. A: conidiophores. B: conidia. H.D. Shin del.

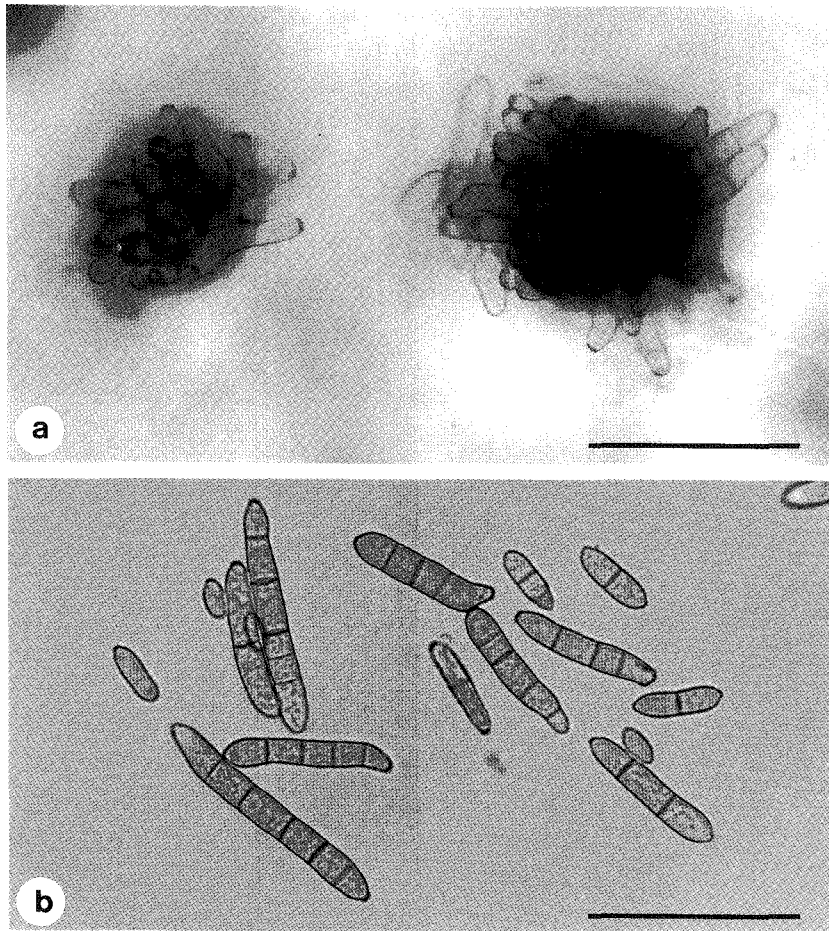


Fig. 2. *Cladosporium alliicola*. a: Conidiophores in a divergent dense fascicle arising from a substomatal stroma. b: Conidia with 0~5 septa, darkened hilum at one or both ends, and non-echinulate surface. Bars indicate 50 μ m.

2. Conidia mostly 1-3-septate, short cylindrical, 28~42 \times 12~16 μ m *C. allii*

2.2. Conidia mostly 1-septate, long cylindrical, 65~95 \times 13~17 μ m *C. allii-cepae*

Comparable *Cladosporium* spp. on other substrates are unknown. Therefore, this fungus must be considered as a new, undescribed species.

Cladosporium alliicola sp. nov. (Fig. 1 & 2)

Maculae amphigenae, suborbiculares vel irregulares, plerumque usque 5 cm latae, margine indistincto, primo flavidae, decenter griseo-brunneae,

vel in inflorescentiis evolutis. Caespituli hypophylli. Mycelium immersum, hyphae septatae, ramosae. Stromata magna, bene evoluta, substomatalia, ex hyphis inflatis composita. Conidiophora dense fasciculata (5~20), divergentia, brunnea vel olivaceo-brunnea, apicem versus leniter pallidiora, levia, non ramosa, 0~3 leniter geniculata, 16~68 \times 4~6 μ m. Cicatrices conidiales valde minutae, conspicuae, incrassatae et fuscatae. Conidia solitaria vel breviter (2~3) catenata, cylindrica, pallide olivaceo-brunnea, levia vel sublevia, 0~7 septata, non constricta, interdum leniter constricta, ad apicem rotundata vel leniter attenuata, basi rotundata, 10~68 \times 4.4~8.4 μ m interdum usque 180

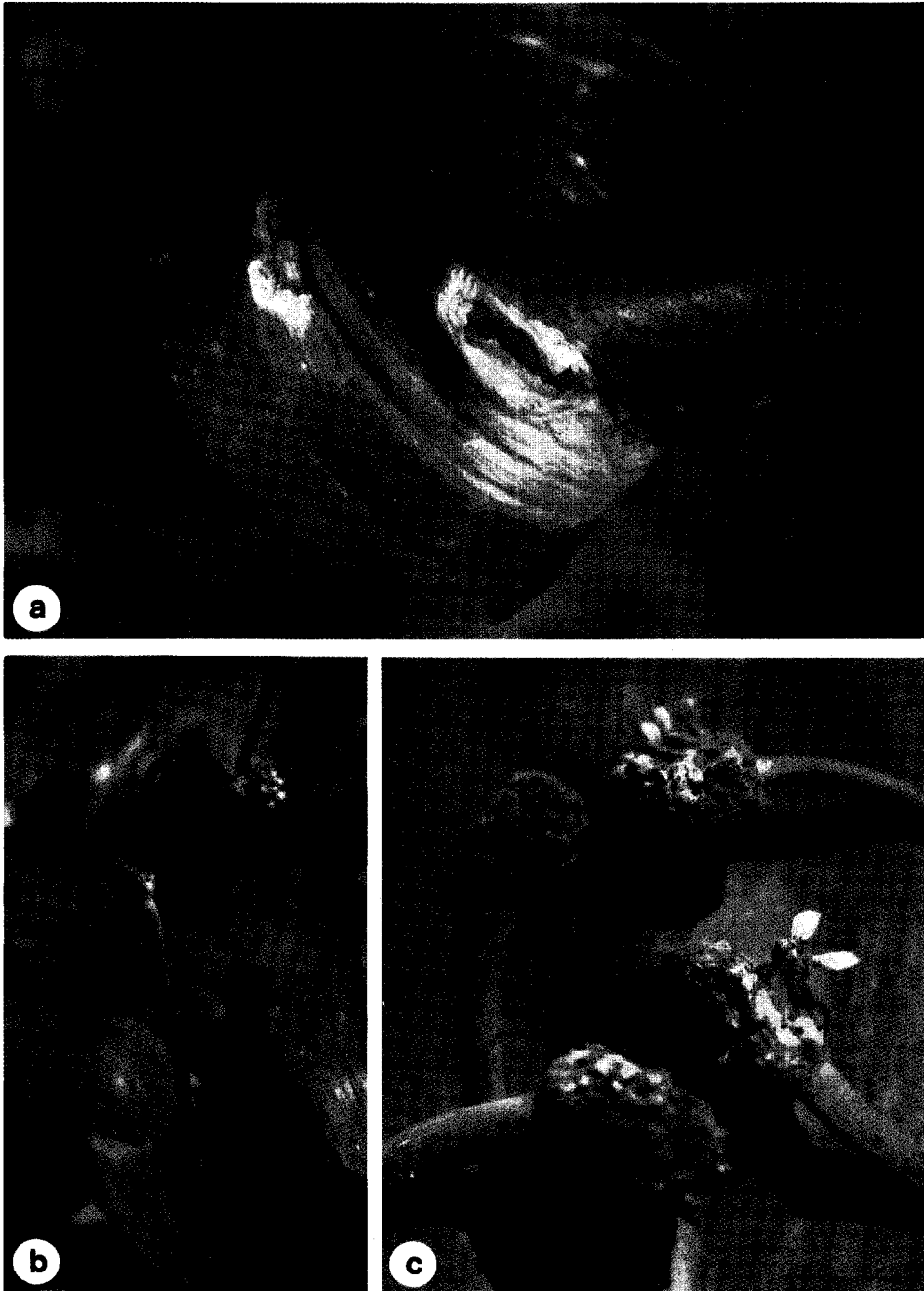


Fig. 3. Symptoms of *Cladosporium* leaf blotch (a) and flower rot (b, c). Note the yellowish discoloration and disintegrated lesions (a) and the inflorescences covered with a dark gray conidial mass (b, c).

μm longa; hila minuta, incrassata et fuscata, processus.

Leaf spot amphigenous, subcircular to irregular,

up to 5 cm in diam., without definite margin, at first discolored yellowish, later becoming grayish brown, also on inflorescences causing severe flo-

wer rot. Caespituli hypophyllous. Mycelium internal, hyphae septate, branched. Stromata large, well-developed, composed of brown hyphal aggregations in the substomatal cavities. Conidiophores 5~20 in a divergent, dense fascicle, brown to olivaceous brown, but paler upwards, usually darker than conidia, aseptate, not branched, 0~3 times mildly geniculate, $16\sim68\times4\sim6\ \mu\text{m}$; conidial scars small but conspicuous, thickened and darkened. Conidia solitary or in short (2~3) unbranched or branched chains, cylindrical, pale olivaceous brown, smooth or almost so, 0-7-septate, not constricted, but occasionally slightly constricted at the septa, rounded or somewhat attenuated at the apex, rounded at the base, $10\sim68\times4.4\sim8.4\ \mu\text{m}$ occasionally up to $180\ \mu\text{m}$ in length; hilum small, but thickened and darkened, protuberant (*Cladosporium* type).

Holotypus: On *Allium victorialis* var. *platyphylum* Makino, SMK 12597 (3 IX 1993, Suwon, Korea, leg. H.D. Shin).

Paratypus: SMK 12761 (7 V 1994, Suwon, Korea, leg. H.D. Shin).

Duplicates are housed in HAL.

병반은 잎의 양면에 생기며, 준원형 내지 부정형으로 직경 5 cm에 이르며, 건전부와의 경계는 뚜렷하지 않고, 처음에는 황색으로 퇴색되며 나중에는 회갈색으로 변한다. 화기에도 발생하여 심한 꽃썩음을 유발한다. 포자형성은 잎의 뒷면에서 이루어진다. 균사는 기주 조직 내부에 있으며, 격벽이 있고, 분지한다. 자좌는 대형으로 잘 발달되며, 기공하포에 갈색의 균사덩이가 뭉쳐서 형성된다. 분생자경은 5~20개씩 우산살 모양으로 뭉쳐나고, 갈색 내지 녹색기가 있는 갈색이나 윗쪽으로 갈수록 얼어지고, 대체로 분생포자의 색깔보다는 짙으며, 격벽은 없고, 분지하지 않으며, 0~3회 약한 절절이 있으며, 크기는 $16\sim68\times4\sim6\ \mu\text{m}$ 이고, 포자흔은 작으나 뚜렷

하며 검게 비후되어 있다. 분생포자는 홀로 또는 2~3개씩 연쇄상으로 형성되며, 때로 분지된 포자흔도 있으며, 원통형이고, 녹색기가 있는 담갈색이고, 표면은 매끈하고, 0~7개의 격벽이 있으며, 정부는 둥글거나 다소 좁아지며, 기부는 둥글고, 크기는 $10\sim68\times4.4\sim8.4\ \mu\text{m}$ 이나 때로 연쇄상의 포자길이는 $180\ \mu\text{m}$ 에 이르며, 배꼽은 작으나 검고 비후되며 돌기상이다.

적 요

산마늘에서 분리한 *Cladosporium* sp.는 *Allium*屬 식물에서 보고된 *C. allii*나 *C. allii-cepae*와는 연쇄상의 多隔壁 分生孢子와 無隔壁 分生子梗을 형성하는 점에서 구별된다. 이 균은 기타 다른 基質에서 보고된 *Cladosporium* spp.와 비슷한 점이 없다. 따라서 이 균은 新種으로 판단되며, *Cladosporium alliicola* H.D. Shin & U. Braun으로 命名한다.

Acknowledgements

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