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Disease Note

Shoot Blight and Leaf Spot of Blueberry Anthracnose Caused by *Colletotrichum acutatum*

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ABSTRACT

Shoot blight and leaf spots were found on highbush blueberry trees in Tsukuba, Ibaraki, in 1999. The causal fungus was identified morphologically as *Colletotrichum acutatum* Simmonds ex Simmonds. This is the first report of blueberry anthracnose caused by *C. acutatum* in Japan.

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Key words : blueberry, anthracnose, *Colletotrichum acutatum*, shoot blight, leaf spot.

Symptoms Shoot blight and leaf spots were found on highbush blueberry trees (*Vaccinium corymbosum* L.) in Tsukuba, Ibaraki Prefecture in 1999. In May, many of the previous year's shoot tips turned brown, then blighted within 20 cm of the tips. Most flower buds also died on the blighted shoots (Plate I-A). In early July, small red or brown spots, which often turned grayish white at the center, were also produced on many leaves neighboring the blighted shoots (Plate I-B). Most of the lesions did not enlarge and remained constant in size through defoliation.

Isolation and identification of the pathogen A fungus that formed pinkish colonies with salmon-pink conidial masses on PDA was primarily isolated from the bark of blighted shoots and from leaf spots. Plate I-C shows the colony of single-spore isolate S9922 on PDA. Conidia produced in acervuli without setae on the colony were aseptate, hyaline, fusiform to ellipsoid, 9.3-16.1×3.2-6.7 μm in size (Plate I-D). Appressoria formed on a slide culture with potato-carrot-agar were one-celled, pale brown, thick-walled, ellipsoid to obovate, rarely irregular and 7.1-12.3×4.9-7.2 μm in size (Plate I-E). Colony diameter of the fungus cultured on PDA in the dark at the optimum temperature (25°C) for 6 days was *ca.* 40 mm. These morphological and cultural characteristics of the isolate coincided with descriptions of *C. acutatum* Simmonds ex Simmonds in the previous reports[1,5-7,9,10]. The fungus was identified as *C. acutatum*.

Pathogenicity Mycelial blocks of isolate S9922 on PDA were placed on healthy shoots and leaves of potted blueberry (cv. Jersey) seedlings. Ten days after inoculation, the fungus caused necrotic lesions and spots at wounded sites on shoots and leaves, respectively (Table 1; Plate I-F). Similar results were obtained when a conidial suspension (2×10^6 conidia/ml) of the fungal isolate was sprayed on plants (Table 1). Some lesions on young and/or thin shoots that subsequently developed, resulting in shoot blight (Plate I-G). The mycelial blocks and conidial suspension also caused the rot symptom on ripe fruits of blueberry. Almost all fruits rotted 5 days after an individual block or suspension (10 μl) was placed onto wounded and intact fruits (Table 1). Although both inocula caused the rot on intact fruits, symptoms either did not appear or were less severe on intact inoculated sites on shoots and leaves (Table 1), suggesting that the fungus may affect fruit more strongly than shoots and

Table 1. Results of inoculation of shoots, leaves and fruits of blueberry with *Colletotrichum acutatum* isolate S9922

Organ inoculated	Mycelial block[a)]		Conidial suspension[a)]	
	Wounded[b)]	Intact	Wounded[b)]	Intact
Shoot of seedling	8/8[c)]	0/8	6/8	0/8
Leaf of seedling	8/8	5/8	8/8	0/8
Ripe fruit	8/8	6/8	8/8	8/8

a) Inocula.
b) Punctured with needles.
c) Number of diseased shoots, leaves or fruits/number of inoculated shoots, leaves or fruits, respectively.

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leaves.

Name of the disease *C. acutatum* and *C. gloeosporioides* are known as causal agents of anthracnose fruit rot or ripe rot of blueberry in the United States[2-4,8]. *C. acutatum* was found to cause shoot blight and leaf spot in addition to fruit rot in this study. Because no blueberry diseases caused by *C. acutatum* have ever been reported in Japan, we propose to name the disease anthracnose ("tanso-byo" in Japanese) of blueberry.

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Plate I

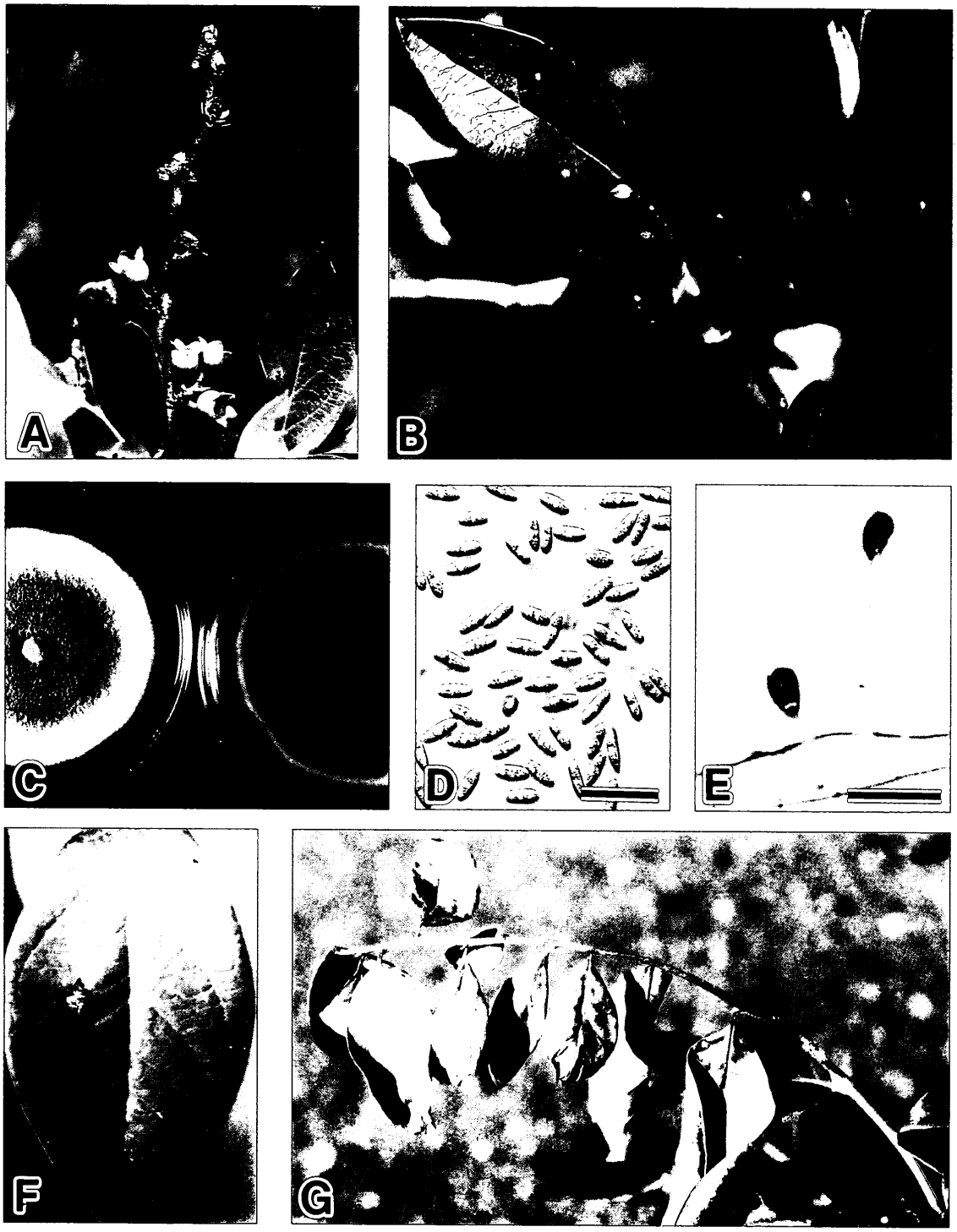

Plate I

A. Shoot blight and dead buds of blueberry.

B. Necrotic leaf spots on blueberry.

C–E. Morphological and cultural characteristics of *Colletotrichum acutatum* (isolate S9922). C. Colony on PDA plates. Left, surface side; Right, reverse side. D. Conidia produced on PDA (bar=30 μm). E. Appressoria formed on potato-carrot-agar slide culture (bar=20 μm).

F. Necrotic leaf spot reproduced 10 days after mycelial inoculation of a wounded leaf of potted blueberry (cv. Jersey) seedling.

G. Shoot blight on potted blueberry (cv. Jersey) seedling 20 days after inoculation with conidial suspension.