

Leaf Blight of Watermelon Caused by *Alternaria cucumerina*

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*Alternaria cucumerina*에 의한 수박잎마름병

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ABSTRACT: Leaf blight of watermelon severely occurred up to 46% in fields at Hwaseong area in Korea during July, 1993. The causal fungus was identified as *Alternaria cucumerina* (Ellis et Everh.) Elliott. Pathogenicity tests revealed that all the three watermelon cultivars used were susceptible to leaf blight.

Key words: Watermelon, *Alternaria cucumerina*, leaf blight.

Leaf blight of watermelon [*Citrullus lanatus* (Thunb.) Matsum. et Nakai] severely occurred up to 46% in fields at Hwaseong area in Korea during July, 1993. The symptoms initially appeared as small, circular, water-soaked and yellowish green to brown flecks with yellow halos. Lesions irregularly expanded later and became dark brown to black and often zonate (Fig. 1). Severely infected leaves blighted and rotted (Fig. 2).

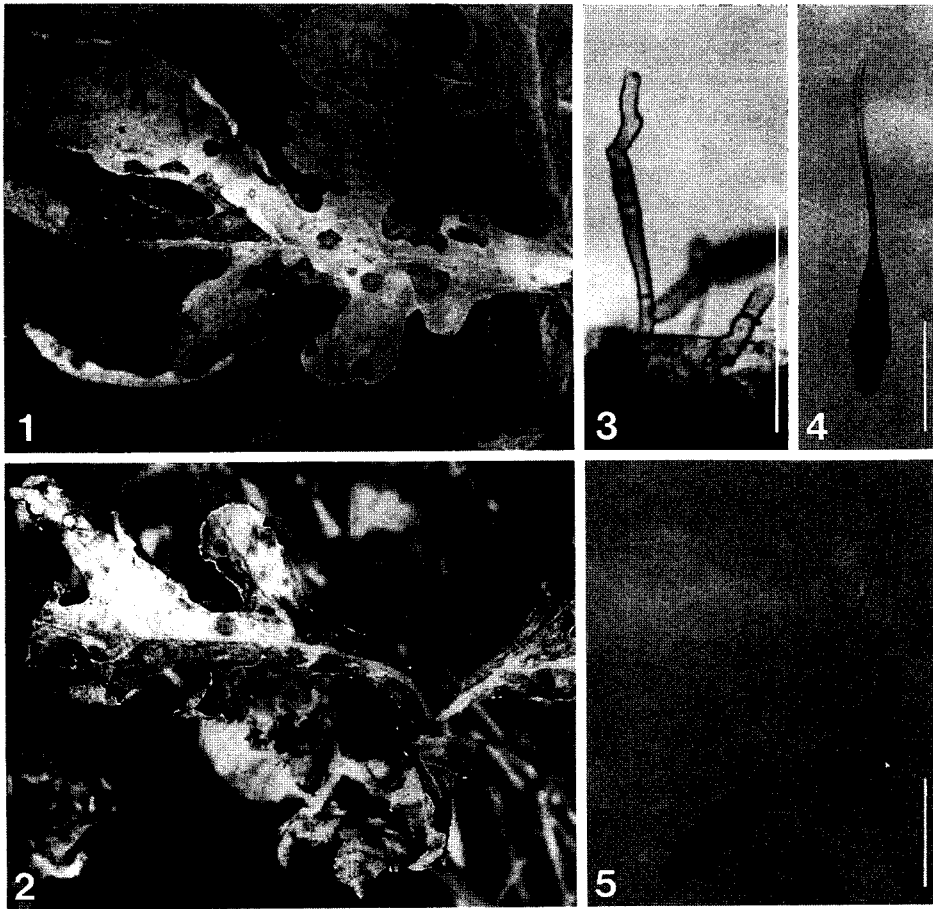
Alternaria sp. was frequently isolated from the leaf blight symptoms of watermelon. All the isolates of the fungus were identified as *Alternaria cucumerina* (Ellis et Everh.) Elliott according to the classification of previous workers (3, 5). Conidia were solitary or occasionally in chains of 2, obclavate and rostrate, and their total length was 100~316 μ m. The conidial bodies had 5~9 transverse and sometimes 1~4 longitudinal and oblique septa, and measured 60.0~80.0 \times 12.0~20.8 μ m (average 69.3 \times 16.2 μ m). Beaks were pale brown, septate, not branched and measured 24.0~252.0 μ m (average 125.6 μ m) long, 3~4 μ m thick at the base rapidly narrowing to 1.6~2.4 μ m. Conidiophores were erect, straight or flexuous, sometimes geniculate, septate, pale brown, and measured 10.0~96.0 \times 4.4~6.0 μ m (average 56.0 \times 5.2 μ m).

The morphology of conidiophores and conidia was shown in Fig. 3 to Fig. 5.

Two isolates of *A. cucumerina* obtained from leaf blight symptoms of watermelon was used for pathogenicity test. Each isolate was cultured on V8-juice agar in 9 cm-diameter petri dishes at 26~28°C for 14 days. The surface of cultures was rubbed by disinfected painting brushes wetted with sterile distilled water, and the culture plates were incubated under fluorescent light at 26~28°C for 3 days. Conidial suspension of each isolate was prepared from the culture plates by the concentration of 5~6 \times 10⁵ conidia per ml.

Watermelon cultivars Daesang, Gamro and Mujigae were used for pathogenicity test. Fifty three-day-old plants of the watermelons cultivated in 1/5000a wagner pots were inoculated. Thirty ml of conidial suspension of each isolate was sprayed onto each plant. The same quantity of sterile distilled water was sprayed onto the control plants. Inoculated plants were kept in a inoculation chamber with 100% relative humidity at 26~28°C for 2 days and moved into a greenhouse at 16~30°C. Disease rating was made 15 days after inoculation. Pathogenicity test was performed in three replicates. Leaf blight symptoms induced by artificial inoculation on the watermelons were identical to those observed in the fie-

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Figs. 1~5. Symptoms of leaf blight on watermelon in the field and morphology of the causal fungus. 1, leaf blight symptoms at the early stage; 2, leaf blight symptoms at the late stage; 3, conidiophores of *Alternaria cucumerina*; 4 and 5, conidia of *A. cucumerina*. The scale bars represent 50 μ m.

Table 1. Pathogenicity of *Alternaria cucumerina* to three cultivars of watermelon by artificial inoculation

Cultivar	Virulence of the isolates	
	HS-1	HS-2
Daesang	+ ^a	+
Gamro	+	+
Mujigae	+	+
Control	-	-

^a + : severe symptoms developed, - : no symptom.

lds. All the watermelon cultivars tested were susceptible (Table 1).

A. cucumerina attacks cucurbits such as watermelon, muskmelon, cucumber and squash (4, 6). It is known that the fungus causes leaf blight on cucum-

ber and pumpkin in Korea (1). The present study reveals first that the fungus causes leaf blight of watermelon in Korea. Bhargava and Singh (2) reported that losses due to *A. cucumerina* on watermelon were 88% in India. It is probable that the disease also severely occurs in other areas besides Hwa-seong area investigated in the present study. It needs further investigation and a control counterplan on the disease occurrence in the watermelon-growing area.

요 약

1993년 7월, 국내 화성지역의 포장에서 수박잎마름병이 최고 46%까지 심하게 발생하였다. 병원진균은 *Alternaria cucumerina* (Ellis et Everh.) Elliott로 동

정되었다. 병원성 검정결과, 공시한 3품종의 수박 모두 잎마름병에 감수성인 것으로 나타났다.

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