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Scientific Notes

Alternaria Fruit Rot of Melon Caused by *Alternaria alternata*

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Abstract: In November 1999 and December 2001, a severe fruit rot caused by *Alternaria alternata* (Fr.) Keissler was found on melon fruits imported from Mexico at plant quarantine inspections. This is the first report on the disease of melon fruit caused by *Alternaria alternata* in Japan.
Key words: melon, *Alternaria alternata*, new disease, plant quarantine, intercept

Winter melon fruits (*Cucumis melo* var. *inodorus* Jacq. cv. Honey-dew melon) have been imported from the United States, Mexico, and the Republic of Korea into Japan, which amounted to 15,000 tons in 2001. A severe fruit rot caused by *Alternaria alternata* (Fr.) Keissler was found on melons imported from Mexico at plant quarantine inspections in Yokohama and Tokyo, Japan, in November 1999 and December 2001. This disease on melon fruit has been previously reported in the United States and other countries, but not in Japan (Burton, 1996; Snowdon, 1990; The Phytopathological Society of Japan, 2000). This report describes the Alternaria fruit rot of melon caused by *A. alternata* intercepted at import plant quarantine for the first time in Japan. An outline of this paper was reported elsewhere (Kobayashi *et al*., 2003).

Symptoms Symptoms on the fruit consisted of circular to oval lesions surrounded by water-soaked margins, which were slightly sunken and appeared brown to black in color as sporulation began. The lesions extended below the epidermis. Older lesions were circular, 0.5–3 cm in diameter, and dark green to black because of abundant sporulation (Plate 1-A, B).

Morphological and cultural characteristics of the pathogen Fungal isolates were obtained by single-spore isolation from conidial masses on lesions, and were incubated on V-8 juice agar (200 m*l* V-8 juice, 3 g $CaCO_3$, 20 g agar, and 800 m*l* distilled water). The fungal colonies were grayish white to olivaceous green and produced abundant conidia under 12 h of black light (TOSHIBA FL20S-BLB 20W)/ 12 h dark (Plate 1-E). Conidiophores were brown to dark-brown and septate. Conidia formed in catenate, often branched chains, were obclavate or obpyriform, with short conical or cylindrical beak, brown to dark-brown, with 2–4 transverse and 0–4 longitudinal or oblique septa, and 15–30 ×7.5–12.5 μm (avg. 21.4×10.3 μm) in size (Plate 1-C, D). The optimum temperature for mycelial growth was 25–30℃. Based on the morphological characteristics of conidia and conidiophores, the fungal isolate was identified as *Alternaria alternata* (Fr.) Keissler (Ellis, 1971).

Pathogenicity Pathogenicity of the isolates was tested on harvested matured melon fruit and leaves. Matured fruit was wounded with a cork borer (6 mm in diameter), and

then mycelial discs from 14-day-old fungal culture on V-8 juice agar were placed on the wound. The inoculated fruit was placed in a moist plastic box for 48 hours at room temperature (25℃), and then kept in the laboratory. Five to 7 days after inoculation, inoculated areas were covered with dark-green to black mycelia, and fruit rot symptoms that appeared on the inoculated area were similar to those found at the inspections (Plate 1-F). The inoculated fungus was easily reisolated from lesions on inoculated areas; however, the fungal isolate did not cause any symptoms on melon seedling.

This is the first report of the disease caused by *A. alternata* on melon in Japan. We propose to call this disease Alternaria fruit rot of melon ("kurogusare-byo", in Japanese).

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Explanation of plate

Plate I Symptoms and causal fungi of Alternaria fruit rot of melon.

A. Symptom on melon fruit intercepted in November 1999.
B. Symptom on melon fruit intercepted in December 2001.
C. Conidial chains formed on V-8 juice agar.
D. Conidia on formed on V-8 juice agar.
E. Colony formed on V-8 juice agar, grown for 6 days at 30℃ under black light.
F. Fruit rot symptom of melon fruit after inoculation.

Plate 1