植保會刊 26：427～429 (1984)
Plant Prot. Bull. (Taiwan, R. O. C.) 26：427～429 (1984)

Phytophthora Fruit Rot of Indian Jujube (*Zizyphus mauritiana* L.)[1]

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(Accepted date: Sept. 5, 1984)

摘　　要

林正忠 (1984) 印度棗果實疫病 植保會刊 26：427～429 (臺灣省農業試驗所鳳山熱帶園藝試驗分所)

本省印度棗(*Zizyphus mauritiana* L.)果實遭受疫病菌(*Phytophthora palmivora*)爲害，出現水浸斑及果實外表變黑色等病徵，經人工接種印度棗，可產生與田間相同的病徵，確定本菌的病原性。本菌最適宜生長溫度爲 30°C，低於 13°C，超過 35°C 皆不能生長。在採收期如遇連續陰雨，本病會發生嚴重，並造成貯藏病害。

Phytophthora fruit rot, a new disease of Indian jujube (*Zizyphus mauritiana* L.), was first found in southern Taiwan during the rainy period of Spring 1983. The disease attacked the ripe fruits only, not leaves or twigs. The infected fruit developed watersoaked lesions on the surface. It was pale brown at first, then turned to black with cotton-like mycelium and numerous sporangia growing out from the lesion. The infected fruits rotted quickly at room temperature and gave off a characteristic sour odor.

A fungus of *Phytophthora* could be isolated by using water agar, Potato dextrose agar or V-8 juice agar. Pyriformis or lemon-shaped sporangia were produced on V-8 juice agar. The sporangial length/width ratio was 1.5. Cardinal temperatures for mycelial growth were 13-30-35 C. The fungus was indistinguishable from *P. palmivora* (Butler) Butler [5].

Sporangia or mycelia of this fungus harvested from V-8 juice agar (incubated at 24-26 C for 5 days under fluorescent light) were used as inocula for pathogenicity test. Healthy fruits were surface sterilized by 75% alcohol for 5 minutes and wounded by removing a small piece of tissue from each fruit with a sterilized knife or by rubbing the surface with 600 mesh carborundum. A mycelial disc (5 mm in diameter) or a drop of sporangial

1) Contribution No. 1122 from the Taiwan Agricultural Research Institute.

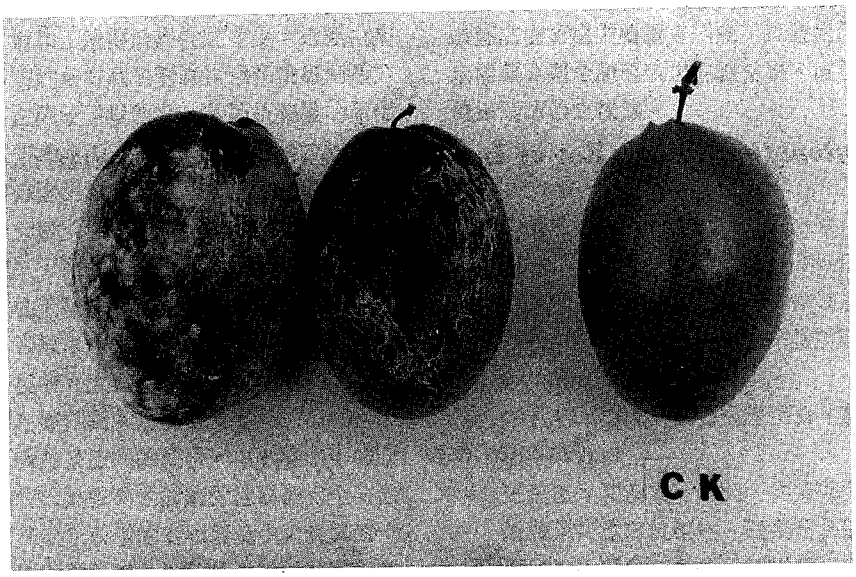

Fig. 1. Indian jujube fruit rot caused by *Phytophthora palmivora*. left: inoculated with *P. palmivora* sporangia. right: control

suspension (54 sporangia/drop (0.05 c. c.)) of *P. palmivora* was placed on wounded or unwounded fruits. The inoculated fruits were, then, enclosed in a polyethylene bag to keep moisture, and incubated in growth chamber with fluorescent light at 24-26 C.

Inoculated fruits developed symptoms similar to those observed in the field within 2-5 days in all inoculation treatments. In contrast, check fruits were healthy. *P. palmivora* could be reisolated from the advancing margin of all diseased specimens.

Host range tests showed that fruits of tomato, eggplant, waxapple, lichee, cucumber, potato and leaves of papaya and *Nicotiana glutinosa* were susceptible to this isolate of *P. palmivora*, but it could not infect leaves of pineapple.

Literatures revealed that *Fusarium decemcellulare* and *Cladosporium eladosporioides* caused post harvest diseases on Indian jujube[4]. *Trichothecium roseum*, *Glomerella cingulata*, *Cladosporium oxysporum*, *Alternaria alternaria*, *Geotrichum* sp., *Phoma herbarum* and *Fusarium equiseti* were also caused post harvest diseases of ber (*Zizyphus mauritiana* L.) from India[3]. *Phomopsis* soft rot and *Botrytis* rot on Indian jujube fruits were reported from India[2] and Taiwan[1]. However, *Phytophthora* rot of Indian jujube may become an important disease if continuous rain prevails in harvesting period. This disease also caused some losses during transit of Indian jujube fruits as well as in the market.

Acknowledgment

The author wishes to thank Dr. H. S. Chang, Institute of Botany, Academia Sinica, for his help on identification of this fungus and Professor S. K. Sun, Department of Plant Pathology, National Chung-Hsing University, Taiwan, for reviewed this manuscript and Miss L. H. Lian for her assistance.

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