Mycologia Iranica 8(1):87–88, 2021 Short Report DOI: 10.22092/MI.2021.356401.1203

Cladosporium cf. *macrocarpum* causal of fruit rot on *Elaeagnus angustifolia*

M. Ketabchi
D. Zafari✉
F. Ghobadi
Department of Plant Protection, Faculty of Agriculture, Bu-Ali Sina University, Hamedan, Iran

The disease symptom was observed on the fruits of several *Elaeagnus angustifolia* trees in Nahavand Orchards, Iran, in September 2019. The symptom observed as dark, water-soaked lesions on the cortex of the fruits, eventually causing the entire fruit to rot (Fig 1-a). Diseased tissues were surface sterilized with ethanol 70% and aseptically transferred on to potato dextrose agar to identify the causal agent. After three days, dark olivaceous colonies appeared (Fig 1-b). The growing fungus was subcultured on SNA, and its colony was brownish green in color. Morphological observations were carried out after seven days of continuous exposure to near-ultraviolet light at 25°C (Bensch et al. 2012). Mycelium was unbranched or loosely branched, septate, sometimes slightly constricted at septa, hyaline to pale brown, smooth to minutely verruculose, and hyaline to pale brown. Conidiophores were solitary, micronematous and macronematous. Conidiogenous cells were terminal or intercalary, cylindrical, nodulose with lateral shoulders, or nodose with swellings around the stalk. Catenate conidia were found in branched chains, and small terminal conidia were subglobose, obovoid, oval, and limoniform, measuring 3–12 × 2–6 µm. Ramoconidia were broadly ellipsoid to subcylindrical, 13–23 × 6–9 µm long, verruculose to echinulate, with walls up to 1 µm thick. Conidia produced by micronematous conidiophores were typically smaller, narrower, and paler, catenate; in short unbranched or branched chains, subglobose, obovoid to limoniform, ellipsoid or fusiform, 3–16 × 2–5 µm, non-septate. The isolated fungus resembles C. *macrocarpum* in these characteristics, but differs from it in the absence of two cell conidia (Fig 1-c).Sequencing ITS-rDNA region and *TEF1-α* gene (Genebank accession numbers MZ021599, MZ234697) revealed 99.8% (MW842789) and 99.2% (DQ677891) similarities to *Cladosporium* sp. Although the isolates in this study are morphologically similar to C. *macrocarpum* and are named as *Cladosporium* cf. *macrocarpum*, they could be a new *Cladosporium* species. As a result, additional molecular data is required for accurate identification. To test the pathogenicity of the fungus, detached fruits were inoculated with a conidial suspension of 10^5 spores ml^{-1}. Healthy fruits were simultaneously sprayed with sterile distilled water as control. The inoculated fruits were kept in a plastic container containing sterile wet filter paper. The containers were kept at 25ºC for seven days. The experiments were performed three times. Sunken, brown lesions were observed after seven days *in vitro* (Brown & Britton. 1986), and the fungus was re-isolated (Fig 1-d). Pathogenicity was confirmed with Koch's postulates by comparing anamorph morphology. To our knowledge, this is the first report *Cladosporium* cf. *macrocarpum* has been identified as a causal agent of fruit rot on *Elaeagnus angustifolia* in the world.

REFERENCES

Bensch et al. (2012). The genus *Cladosporium*. Studies in Mycology, 72: 1-401.

Brown & Britton (1986). Botryosphaeria diseases of apple and peach in the southeastern United States. Plant Disease, 70: 480-484.

Submitted 5 May 2021, accepted for publication 5 June 2021
✉ Corresponding Author: E-mail: zafari_d@yahoo.com

https://mij.areeo.ac.ir

Fig. 1. a. Symptoms of fruit rot; b. Dark olivaceous colonies after 3 days; c. Conidiophores and conidia; Scale bars = 10 µm d. Pathogenicity test. d-1. symptoms after 7 days; d-2. symptoms after 5 days; d-3. control