

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

First report of postharvest Fruit Rot in avocado (*Persea americana*) caused by *Lasiodiplodia theobromae* in Italy.

This is a pre print version of the following article:

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/130604> since 2016-11-11T11:36:57Z

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

This is the author's final version of the contribution published as:

Garibaldi A.; Bertetti D.; Amatulli M. T.; Cardinale J.; Gullino M.L.. First report of postharvest Fruit Rot in avocado (*Persea americana*) caused by *Lasiodiplodia theobromae* in Italy.. *PLANT DISEASE*. 96 pp: 460-460.

When citing, please refer to the published version.

Link to this full text:

<http://hdl.handle.net/2318/130604>

1 **First Report of Postharvest Fruit Rot in Avocado (*Persea americana* Mill.) Caused by**
2 ***Lasiodiplodia theobromae* (Pat.) Griffon & Maubl. in Italy.** A. Garibaldi, D. Bertetti, M.T.
3 Amatulli, J. Cardinale and M. L. Gullino, Centre of Competence for the Innovation in the Agro-
4 Environmental Sector (AGROINNOVA) Via Leonardo da Vinci 44, 10095 Grugliasco, Italy.
5
6 Avocado (*Persea americana* Mill.) is grown in some areas of southern Italy. In spring 2011, a
7 previously unknown rot was observed on fruit marketed in Torino (northern Italy). The decayed
8 area started from the stalk and appeared irregular, soft, and was surrounded by a dark brown
9 margin. The internal decayed area appeared rotten, brown, and surrounded by bleached tissue.
10 Fragments (approximately 3 mm) were taken from the margin of the internal diseased tissues,
11 cultured on potato dextrose agar (PDA) and incubated at temperatures between 21-25°C, under
12 alternating light and darkness. Colonies of the fungus initially appeared whitish, later turning
13 mouse grey to black. Mature mycelium was septate and produced a dark pigment. The fungus,
14 grown on oat-agar (2) and incubated at temperatures between 21-25°C, under alternating light
15 and darkness produced grayish colonies, with a fluffy aerial mycelium which became dark with
16 age and produced black pigments. After 18 day, such colonies produced pycnidia aggregated into
17 stromatic masses, emerging from decayed tissues, up to 3-4 mm in diameter. Conidia produced in
18 the pycnidia were initially unicellular, hyaline, granulose, ovoid to ellipsoidal, measuring 20.8 –
19 26.9 x 12.5 -16.1 (average 24.4 x 13.5) µm. After 7 days, mature conidia became darker and
20 uniseptate. The morphological characteristics of mycelia, pycnidia and conidia observed with a
21 light microscope permitted to identify the fungus as *Lasiodiplodia theobromae* (3). The Internal
22 Transcribed Spacer (ITS) region of rDNA was amplified using the primers ITS1/ITS4, and
23 sequenced. BLAST analysis (1) of the 488 bp segment showed a 100% similarity with the

1 sequence of *Lasiodiplodia theobromae* Pat. Griffon & Maubl (GeneBank accession GQ502453).
2 The nucleotide sequence has been assigned the GenBank Accession JN849098. Pathogenicity
3 tests were performed by inoculating three avocado fruits after surface-disinfesting in 1% sodium
4 hypochlorite and wounding. Mycelial disks (8 mm diameter), obtained from PDA cultures of one
5 strain, were placed on wounds. Three control fruits were inoculated with plain PDA. Fruits were
6 incubated at 14-20 °C. The first symptoms developed 5 days after the artificial inoculation. After
7 7 days, the rot was very evident and *L. theobromae* was consistently reisolated. Non-inoculated
8 fruit remained healthy. The pathogenicity test was performed twice. To our knowledge, this is
9 the first report of the presence of *L. theobromae* on avocado in Italy, as well as in Europe. The
10 occurrence of postharvest fruit rot on avocado caused by *L. theobromae* was described in many
11 producing areas such as the US (4), South Africa and Israel. In Italy, the economic importance of
12 avocado cultivation is at present limited.

13

14 References: (1) S.F. Altschul *et al.* Nucleic Acids Res., 25:3389, 1997. (2). Narayanasamy.
15 Microbial Plant Pathogens. Detection and Disease Diagnosis: Fungal Pathogens. Springer,
16 Dordrecht, 201 pages, 2011. (3) E. Punithalingam. CMI Description of Fungi and bacteria. Sheet
17 519, 1976. (4) H.E. Stevens, R.B. Piper. Circular USDA n. 582, 46 pages, 1941.

18