

Title First report of *Penicillium glabrum* causing a postharvest fruit rot of pomegranate (*Punica granatum*) in the Piedmont Region of Italy

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Abstract

Pomegranates (*Punica granatum* L.) are widely grown in many tropical and subtropical countries, especially in the moderate climate of the Mediterranean Region. In Italy, pomegranates are harvested from September to November. During October and November 2009 in Orbassano (Piedmont Region), postharvest fruit rots were observed on pomegranates (cv. Dente di Cavallo) after 30 days of storage at 5°C. Infected fruits showed soft, brown tissues that later were covered with masses of green mycelium, conidiophores, and hyphae of a fungus. Tissues were excised from the margin between the healthy and diseased tissues on pomegranates and plated on potato dextrose agar amended with 25 µg of streptomycin per liter. The fungus recovered from the tissue produced abundant mycelium and conidia on PDA after 7 days at 20 ± 2°C. Colonies consisting of dense erect conidiophores appeared velvety, gray-green, and the reverse of PDA culture was usually yellow to yellow-orange. Conidiophores were monoverticillate, consisting of an unbranched stipe, smooth to finely roughened, and germinating in a whorl of 10 to 12 phialides. Phialides were flask shaped and 8 to 12 × 3 to 3.5 µm. Conidia were produced in typical long columns, globose to subglobose, smooth to finely roughened, with walls somewhat echinulate, and ranging from 3 to 3.5 µm in diameter (3). Preliminary morphological identification of the fungus was confirmed by PCR using genomic DNA extracted from the mycelia of pure cultures. One sequence, obtained through the amplification of ribosomal region ITS1-5.8S-ITS2 (4), was blasted in GenBank and showed 100% sequence coverage and 99% similarity to ribosomal sequences of *Penicillium glabrum*. The sequence was deposited in GenBank (Accession No. GU734815). Pathogenicity was tested on 10 ripe fruits (cv. Dente di Cavallo) surface sterilized with 1% sodium hypochlorite. To make inoculum, 7-day-old PDA cultures of the fungus were flooded with sterile water and scraped with a sterile spatula. Resulting suspensions were filtered through two layers of sterile cotton lint and brought to a final concentration of 10⁵ conidia/ml with sterile distilled water. Conidial suspensions (30 µl) were placed on artificial wounds generated on the fruit surface. Control fruits

were treated with sterile water. Ten days after inoculation, *P. glabrum* was reisolated on PDA from the inoculated fruit. Control fruits were symptomless. Previously, *P. glabrum* was reported on pomegranate in Greece (1). Other species of *Penicillium*, including *P. expansum*, *P. implicatum*, and *P. purpurogenum*, also were reported on pomegranate in the United States (2), Slovakia, and India, respectively. To our knowledge, this is the first report of *P. glabrum* causing a postharvest fruit rot of pomegranate in Italy.