



First report of rosemary leaf spot caused by *Nigrospora oryzae* in Iran

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Rosemary (*Rosmarinus officinalis*), a herbaceous and perennial plant in the *Lamiaceae*, is one of the most important ornamental and medicinal plants grown in Iran. In November 2012, leaf spot symptoms were observed during a survey of rosemary fields in Kerman (southeast Iran). Out of the approximately 150 rosemary plants examined, more than 45% had leaf spots. Samples of infected leaves were surface sterilised with 0.5% sodium hypochlorite for three minutes, rinsed with sterile distilled water, cultured onto potato dextrose agar (PDA) and incubated at 25°C for seven days. Fast growing woolly colonies were isolated, appearing initially white, later grey, and eventually turning black on both sides (Fig. 1a). Four isolates were collected (DMNOC1, DMNOC2, DMNOC3, and DMNOC4) and stored in the local culture collection at the Agricultural and Natural Resources Research Center of Kerman, Iran. Brown to black, spherical to sub-spherical, single celled conidia, ranging from 11.0 to 14.4 µm (mean 13.2 µm, n=100), were born on hyaline vesicles at the tip of short and rarely branched conidiophores (Fig. 1b). Based on morphological characteristics, the fungus was identified as *Nigrospora oryzae* (Ellis, 1971).

To demonstrate pathogenicity, inocula were produced from five-to-seven-day-old PDA cultures of *N. oryzae* isolates DMNOC1 and DMNOC3. Conidia were harvested by flooding the surface of the petri dish with 5 ml of sterile distilled, deionised water and gently scraping the surface of the media with an L-shaped glass rod to dislodge the conidia. The concentration was then adjusted to 10⁴ conidia/ml using a haemocytometer. Three two-month-old plants were inoculated with each of the individual isolates by spraying the conidial suspension on to the leaves with a hand-held sprayer until run-off. In addition, one plant was sprayed only with water as the control. All plants were covered with plastic bags to retain high humidity and kept in a greenhouse at 25-28°C. After 10 days, leaf spots

were observed on all treated plants (Fig. 1c), with no observable differences between isolates. An average of 34% of the leaves (n=70) of the treated plants showed spots, covering on average 20% of the leaf surface. Some of the leaves gradually fell off. The control plant showed no symptoms. *N. oryzae* was re-isolated from the spots, thereby confirming Koch's postulate.

This disease on rosemary, caused by *N. oryzae*, is significant because the main importance of rosemary is the leaves and any discoloration or dropping of the leaves will affect the quality and yield. This fungus has been previously reported from Iran on maize (Naderpour, 2004), barley, and *Sorghum bicolor* cv. 'Speed Feed' (Abbasi & Aliabadi, 2009). Lezama *et al.* (2007) reported a *Nigrospora* sp. on rosemary in Venezuela, but the species was not specified. To the best of our knowledge, this is the first report of *N. oryzae* on rosemary in Iran and perhaps the world.

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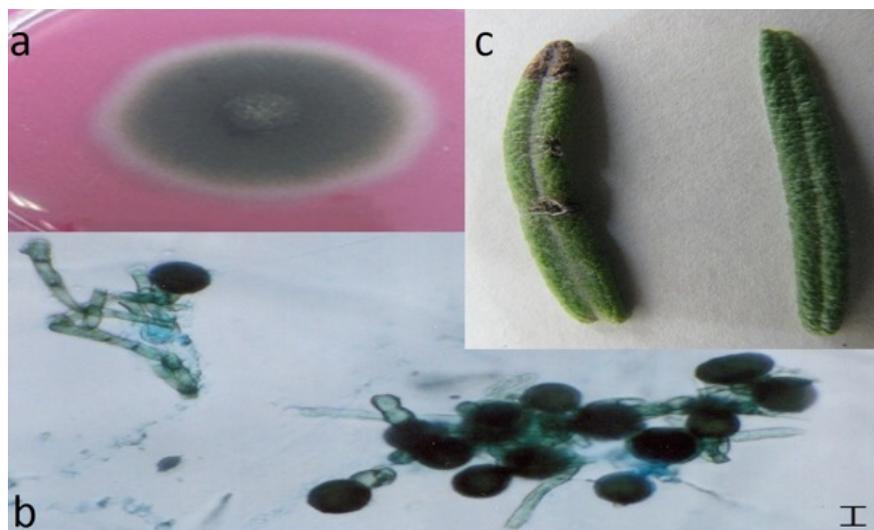


Figure 1

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