



First report of *Fusarium sambucinum* on rosemary plant in Iran

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Rosemary (*Rosmarinus officinalis*) is a herbaceous and perennial plant in the Lamiaceae. As a medicinal and ornamental plant, it is of particular importance in Iran, and cultivation has expanded across many provinces. Some *Fusarium* species, including *F. solani* (Oji-Ardebili *et al.*, 2008; Nasr Esfahani *et al.*, 2011), *F. reticulatum* (Oji-Ardebili *et al.*, 2008), and *F. oxysporum* (Ashrafi *et al.*, 2010; Nasr Esfahani *et al.*, 2011) have been previously reported as the causal agents of root and crown rot of rosemary

In November 2012, crown and root rot, with associated wilting of plants was observed in rosemary fields of Kerman (Southeast Iran). Of about one hundred and forty rosemary plants examined, more than 50% showed symptoms of crown rot, root rot and wilt and more than 35% had died. A selection of infected root and crown tissues were surface sterilised with 0.5% sodium hypochlorite for three minutes, rinsed with sterile distilled water, placed on potato dextrose agar (PDA) and incubated at 25°C. Single spore cultures were obtained from the isolated fungi. After five days, white fungal colonies appeared, which later turned to pink and finally to orange (Fig. 1). Abundant 3-5-septate macro-conidia were produced, 32.2-33.7 µm long and 4.1 µm wide. These macro-conidia were pointed apically and had foot-shaped (dolphin-like) basal cells (Fig. 2). Some micro-conidia have also been produced (Fig. 2). Single, clumped or chained chlamydo spores were noticeably abundant (Fig. 3). Based on morphological cultural characters, the fungus was identified as *Fusarium sambucinum* (Nelson *et al.*, 1983; Burgess *et al.*, 1994). It should be noted that the presence of micro-conidia clearly differentiates this species from *F. culmorum* where micro-conidia are absent. Pathogenicity tests were performed using

inoculated wheat seeds. Rosemary plants were cultured in sterilised soil and the inoculated wheat was placed 2-8 cm deep into the soil surrounding the plant roots. Non-inoculated wheat seeds were used in control treatments. Root and crown rot, and discoloration of xylem were observed after about one month in inoculated plants (Fig. 4) whereas control plants remained healthy. To our knowledge this is the first report of *F. sambucinum* on *R. officinalis* in Iran and the world.

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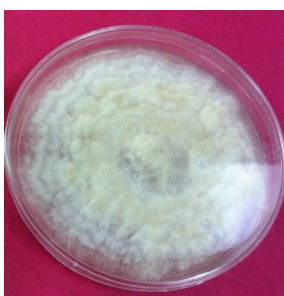


Figure 1

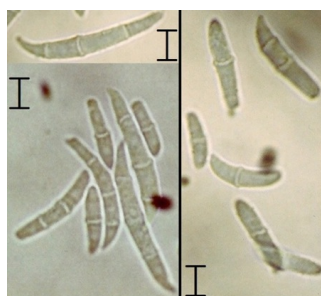


Figure 2

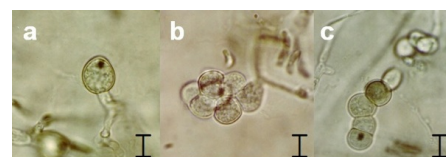


Figure 3



Figure 4

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