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First Report of Fusarium oxysporum Causing Wilt on Iceland Poppy (Papaver nudicaule) in Italy.

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1 **First Report of *Fusarium oxysporum* Causing Wilt on Iceland Poppy (*Papaver nudicaule*) in**
2 **Italy.**

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8 During fall 2011, symptoms of a wilt disease were observed in a commercial nursery near
9 Ventimiglia as well as in the Research Center of Floriculture of Sanremo (northern Italy) on
10 plants of *Papaver nudicaule* (Iceland poppy) belonging to a local unnamed selection. In the
11 commercial nursery, 15 to 20% of plants were affected, while about 3% of plants were affected at
12 the Research Center. Symptoms consisted of chlorosis, premature leaf drop, and foliar wilting,
13 followed by the stem wilting, bending and eventually rotting from the base. Brown discoloration
14 was observed in the stem vascular tissue. Using Komada's *Fusarium*-selective agar medium (2),
15 a fungus was consistently and readily isolated from symptomatic vascular tissue of plants
16 collected from both sites. The isolates were purified and subcultured on potato dextrose agar
17 (PDA), on which medium both isolates produced pale violet, abundant, aerial mycelium, felted
18 in old cultures, with pale purple pigments in the agar medium. The isolate generated short
19 monophialides with unicellular, ovoid-elliptical microconidia measuring $3.9\text{-}6.7 \times 1.4\text{-}3.0$
20 (average 5.4×2.3) μm . On carnation leaf agar (CLA) (1), isolates produced pale orange
21 sporodochia with macroconidia that were 3-septate, slightly falcate with a foot-shaped basal cell
22 and a short apical cell, and measured $26.0\text{-}43.5 \times 3.1\text{-}4.4$ (average 35.3×3.7) μm .

1 Chlamydospores were abundant, terminal, and intercalary, rough walled, mostly singles but
2 sometime in short chains or clusters, and measured 5.2 - 10.1 μm in diameter. Such
3 characteristics are typical of *Fusarium oxysporum* (3). The internal transcribed spacer (ITS)
4 region of rDNA was amplified from the isolates using the primers ITS1/ITS4 (4), and sequenced.
5 BLASTn analysis of the 507 bp ITS sequence of one isolate from *P. nudicaule* collected from
6 the commercial nursery (GenBank Accession No. JX103564) showed an E-value of 0.0 and
7 100% identity with the ITS sequence of *F. oxysporum* (HQ649820). To confirm pathogenicity of
8 one of the Iceland poppy isolates, tests were conducted on 2-month-old plants of the same
9 cultivar on which symptoms were first observed. Plants (n = 14) were inoculated by dipping
10 roots in a 1×10^7 CFU/ml conidial suspension of the isolate of *F. oxysporum* prepared from 10
11 day-old cultures grown in potato dextrose broth (PDB) on a shaker (90 rpm) for 10 days at $22 \pm$
12 1°C (12 h fluorescent light, 12 h dark). Non-inoculated control plants (n = 14) were dipped in
13 sterilized water. All the plants were transplanted into pots filled with steamed potting mix
14 (sphagnum peat:perlite:pine bark:clay at 50:20:20:10), and maintained in a glasshouse at 24 to
15 28°C . Inoculated plants showed typical symptoms of Fusarium wilt after 10 days. The stems then
16 wilted and plants died. Non-inoculated plants remained healthy. *F. oxysporum* was reisolated
17 from inoculated plants but not from control plants. The pathogenicity test was conducted twice
18 with the same results. Since Fusarium wilt has not previously been described on Iceland poppy at
19 any location, this is first report of *F. oxysporum* on *P. nudicaule* in Italy and anywhere in the
20 world.

21 *References:* (1) N. L. Fisher et al. *Phytopathology* 72:151, 1982. (2) H. Komada. *Rev. Plant Prot.*
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