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1 **Presence of Fusarium wilt, incited by *Fusarium oxysporum* f.sp. *lactucae*, on lettuce in France.**

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8 Lettuce (*Lactuca sativa* L.) is an important crop for fresh consumption. In summer 2016, wilting of
9 33-day-old plants of the Batavia-type lettuce cv. Toubillon was observed on a farm in Nice, France.
10 Disease incidence on plants grown in protected plastic tunnels, was ~15 to 40% with a yield loss of
11 up to 50%. Affected plants were stunted, and developed yellow leaves with orange discoloration in
12 the vascular tissue. Diseased crown and stem tissues were surface disinfested for 1 min in 1% NaOCl,
13 rinsed in sterile water, placed on potato dextrose agar (PDA) amended with 250 mg/liter of
14 streptomycin sulfate, and incubated at 23°C. A fungus was consistently and readily isolated from
15 symptomatic tissue, showing dense, cottony, thick, floccose mycelia with purplish to white
16 pigmentation. The isolate Fol 8/16 produced pale orange sporodochia eighteen days after inoculation
17 of carnation leaf agar (CLA) medium. Macroconidia were straight to slightly curved, with 3-septa,
18 hook-like apical cell and pointed foot-shaped basal cell and measured 20.3 to 36.9 (28.1 average) ×
19 2.9 to 4.5 (3.3 average) µm. Microconidia produced from short monophialides in false heads, were
20 oval, and measured from 4.9 to 11.6 (8.3 average) × 2.1 to 3.7 (2.9 average) µm. Chlamydo spores
21 were mostly singles, terminal and intercalary, rough walled, and measured 5.5 to 10.2 (average 8.1)
22 µm. Such characteristics are typical of *Fusarium oxysporum* (Leslie and Summerell 2006). DNA from
23 a monoconidial isolate (Fol 8/16) was extracted using E.Z.N.A. Fungal DNA mini kit (OMEGA Bio-
24 Tek, Norcross, GA, USA). A PCR reaction was carried out to amplify the elongation factor 1-alpha
25 (EF-1α) using the primers EF1/EF2 (O'Donnell et al. 1998). The PCR products were purified and
26 sequenced by MacroGen Europe (The Netherlands) in both directions. Contig was obtained using
27 DNA Baser programme (Heracle BioSoft SRL, Romania) and the sequence was analysed using
28 BLASTn obtaining 100 % similarity with the isolate *Fusarium oxysporum* f. sp. *lactucae* with
29 GenBank accession number DQ837657. The sequence was deposited (GenBank accession number
30 number KY009875). Pathogenicity tests were carried out on 25-day-old plants of cv. Tourbillon.
31 Forty plants were inoculated by dipping roots in a 1 × 10⁶ CFU/ml suspension of isolate Fol 8/16.
32 Inoculated and noninoculated plants were transplanted into four pots (10 plants/pot) filled with 12 L
33 of steamed potting mix (peat/perlite/sand, 60:20:20 vol/vol) and maintained in a glasshouse at 28 to
34 30°C. Wilt symptoms and vascular discoloration of the crown and veins developing in 15 days. Thirty

35 days after inoculation 80% of the inoculated plants were dead, while all noninoculated plants
36 remained healthy. The pathogenicity test was conducted twice with the same results. A fungus
37 morphologically identified as *F. oxysporum* was consistently isolated from all the symptomatic
38 plants. No colonies developed from reisolations from non inoculated control plants. This is the first
39 report of Fusarium wilt of lettuce in France, where it is restricted to a few farms. In Europe this disease
40 was first reported in Italy (Garibaldi et al. 2002). The presence of lettuce Fusarium wilt in France
41 should stimulate efforts to prevent its spread to other lettuce production areas.

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