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1 **First Report of Leaf Spot of Garden Lupin (*Lupinus polyphyllus* Lindl.) Caused by**
2 ***Pleiochaeta setosa* Kirchn. in Italy.** A. Garibaldi, D. Bertetti, A. Poli and M. L. Gullino, Centre of
3 Competence for the Innovation in the Agro-Environmental Sector (AGROINNOVA) Via Leonardo
4 da Vinci 44, 10095 Grugliasco, Italy.

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6 *Lupinus polyphyllus*, common name garden lupin, is a perennial plant with a great number of
7 hybrids that can vary dramatically in colour, used in parks and gardens and also grown as cut
8 flowers. During summer 2011, extensive brown necroses were observed on old and young leaves
9 of plants grown in a private garden near Biella (northern Italy). The disease affected about 50 of
10 two-year-old plants. On older leaves, the first symptoms were usually brown circular to irregular
11 lesions, 1-10 mm in diameter, showing in the inner part alternating pale and dark brown circles.
12 Lesions usually interested the entire leaf and showed a yellow halo. On younger leaves, lesions
13 were darker, violet, with a chlorotic halo. When lesions interested the entire leaf, it curled, without
14 falling. Eventually lesions interested also leaf veins and stems and plants died. A fungus was
15 consistently isolated from infected leaves on potato dextrose agar (PDA) at average daily
16 temperature ranging from 21 to 25°C, under 16 h of light and 8 h of darkness. Mature colonies were
17 dark olive-green and produced orange-ochre pigments in the medium. The mycelium had
18 olivaceous, septate hyphae that produced abundant dark, intercalary chlamydo-spores. The conidia
19 were cylindrical to elliptical, slightly curved, with a truncated base, 5-7 transverse septa and 3
20 hyaline appendages. The cells at the ends of conidia were sub-hyaline, whereas the intermediate
21 cells were olive-brown. The conidia measured 76-94 × 14-9 (average 85 × 16) µm. Appendages
22 were up to 84 µm long. On the basis of its morphological characteristics the pathogen was identified
23 as *Pleiochaeta setosa*. DNA was extracted using Terra PCR Direct Polymerase Mix (Clonte, CH)
24 and PCR carried out using ITS 1/ ITS 4 primer (4). A 570 base pair PCR product was sequenced
25 and a BLASTn search (1) confirmed that the sequence corresponded to *Pleiochaeta setosa*. The
26 nucleotide sequence has been assigned the GenBank Accession number JQ358708. Pathogenicity
27 tests were performed by inoculating leaves of healthy 5-month-old lupin plants, by placing 8 mm
28 mycelial disks of one isolate of the pathogen grown on PDA in light-dark for 15 days. Five plants
29 were used and ten leaves/plant were inoculated. Five plants inoculated with PDA disks served as
30 control. Plants were covered with plastic bags for 4 days after inoculation and maintained in a
31 growth chamber at 20°C ± 1. Lesions developed on leaves 3 days after inoculation, whereas
32 control plants remained healthy. *P. setosa* was consistently reisolated from these lesions. The
33 pathogenicity test was carried out twice. The presence of *P. setosa* on *L. polyphyllus* has been

34 reported in Australia, USA (2) and Poland (3). This is, to our knowledge, the first report of *P.*
35 *setosa* in Italy. The impact of this disease is at present limited.

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37 *References:* (1) S.F. Altschul *et al.* *Nucleic Acids Res.*, 25:3389, 1997. (2) A.M. French. California
38 Plant Disease Host index. Calif. Dept. Food Agric. Sacramento, 394 pages, 1989. (3) W. Mulenko
39 *et al.* A preliminary checklist of Mycomycetes in Poland Polish Academy of Sciences, 752 pages,
40 1982. (4) T. J. White *et al.* In: PCR Protocols: A Guide to Methods and Applications (M. A. Innis
41 *et al.*, eds.) Academic Press, San Diego, 1990.

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