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First report of *Fusarium oxysporum* f. sp. *lilii* and *F. proliferatum* affecting *Lilium* crops in Spain

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ABSTRACT

Fusarium oxysporum f.sp. *lilii* and *F. proliferatum* were associated for the first time in Spain to leaf chlorosis, defoliation, necrotic spots on bulbs and roots, dwarfing and death of Oriental hybrids of *Lilium* plants, and artificial inoculations showed their pathogenicity to lily cv. Siberia.
Keywords: Basal rot, etiology, Koch´s postulates, pathogenicity tests.

RESUMO

Primeiro relato de *Fusarium oxysporum* f. sp. *lilii* e *F. proliferatum* causando doença na cultura de *Lilium* na Espanha

A ocorrência de *Fusarium oxysporum* f. sp. *lilii* e *F. proliferatum,* causando clorose, redução de crescimento e morte das plantas em lírio foi relatada pela primeira vez, na Espanha. Os patógenos foram isolados dos dois principais híbridos cultivados: "Oriental e Asian".
Palavras-chave: Etiologia, podridão do colo, postulados de Koch, teste de patogenicidade.

Dwarf and chlorotic *Lilium* plants were observed in spots in greenhouses of SW Spain. The affected Oriental lily plants showed defoliation of the abaxial part of the stem (Figure 1), and necrotic brown-black spots of bulbs, and support and absorbent roots. Similar symptoms have been described in Oriental and Asian hybrids of *Lilium,* and Easter lily (*L. longiflorum* Thunb.) by Bald *et al*. (1983). *Fusarium* isolates were obtained from stem and roots of *Lilium* plants of Oriental varieties Coloma, Tibet and Siberia. They were increased separately on sterile substrate (sand: corn meal, 9:1; v/v) during 15 days at 24ºC, and then mixed with uninfested soil (1:4, v/v). Bulbs of the Oriental variety Siberia, susceptible to *Fusarium oxysporum* f. sp. *lilii* Imle were planted in this mixture and kept for 95 days at 25ºC with a 12 h photoperiod. Evaluations of symptoms and severity were performed weekly according to a scale 1-5, where 1=asymptomatic plant, 2=10-49% of the plant with necrosis, 3=50-79% of the plant with necrosis, 4=80-90% of the plant with necrosis, 5=dead plant. At the end of the experiment, isolations from different parts of the stems of symptomatic plants were made on PDA and on V8-agar. All the isolates tested caused dwarfing, wilting and malformations of *Lilium* plants or prevented blooming, causing plant death since 60 days after bulb planting. Severity values of 4-5 were reached (Figure 2), and *Fusarium* isolates were recovered from all plants inoculated. Four out of the six *Fusarium* isolates tested were characterized as *F. oxysporum* whereas the other two were *F. proliferatum* (Matsush.) Nirenberg. This is the first report of *F. oxysporum* f. sp. *lilii* and *F. proliferatum* affecting *Lilium* crops in Spain. Both species were reported in the Netherlands (Löffler *et al*., 1995), and *F. oxysporum* was reported in *Lilium* crops of Italy, Poland and the USA.

FIG. 1 - Chlorosis and defoliation of Oriental lily (cv. Tibet) plants naturally infected by *Fusarium oxysporum* f.sp. *lilii*.

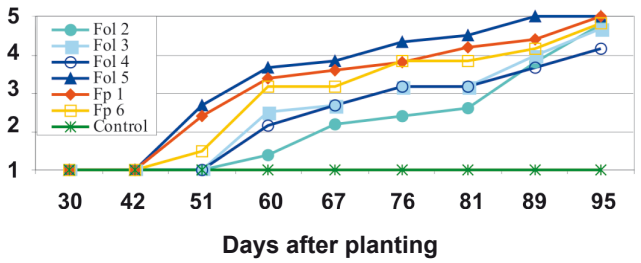

FIG. 2 - Progress of the severity of infections of lily bulbs (cv. Siberia) inoculated with isolates of *Fusarium oxysporum* and *F. proliferatum*.

REFERENCES

Bald JG, Paulus AO, Lenz JV (1983) Control of field root and bulb diseases of Easter lily. Plant Disease 67:1167-1172.

Löffler HJM, Straathof TP, Mouris JR, Baayen RP (1995). Durability of resistance in lily to basal rot: evaluation of virulence and aggressiveness among isolates of *Fusarium oxysporum* f. sp. *lilii*. European Journal Plant Pathology 102:261-271.

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