



First report of white mould of beans caused by *Sclerotinia sclerotiorum* in Cuba

E. Martínez-de la Parte^{1*}, M. Trujillo², T. Cantillo-Pérez¹ and D. García¹

¹ Central Plant Quarantine Laboratory, Ministry of Agriculture of Cuba, Ayuntamiento #231, Plaza de la Revolución, Havana, 10400, Cuba; ² Matanzas Provincial Plant Protection Laboratory, Ministry of Agriculture of Cuba

*E-mail: micología@sanidadvegetal.cu

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Common bean (*Phaseolus vulgaris*) constitutes the most important legume food crop in Cuba. Alone or with rice, dry beans are the core of the daily Cuban diet. Beans are widely cultivated all over the country with approximately 150,584 ha harvested with a yield of 110,780 tonnes in 2009 (ONE, 2010). In January 2012, it was noticed that plants in bean fields (planted with varieties BAT-93, BAT-304, Delicia Roja and Cuba C-25-9-R) began to wilt and die in the Matanzas, Mayabeque and Artemisa provinces. Disease incidence varied amongst fields, ranging from 21 to 85%. Initial symptoms included wilting of leaves, watery spots on the pods and stems, followed by the development of a fluffy white mycelium in the rotted areas (Fig. 1). In all fields, round to irregular or oblong sclerotia (5-6 mm in diameter) were present on infected stem and pod surfaces along with white mycelia. Stems and pods with these symptoms were collected, surface sterilised for two minutes in 1% sodium hypochlorite solution, rinsed for three minutes in sterile distilled water, and placed in humid chambers. Sections of surface sterilised rotten tissue were also placed on potato dextrose agar (PDA) amended with 0.1 g/l chloramphenicol and incubated at 22°C. Fluffy white mycelium and black sclerotia formed on all pods and stem surfaces stored in the humid chambers. Similarly, fluffy white mycelium with a ring of sclerotia (5.4 ± 0.6 mm) developed near the edge of the PDA plates after seven days incubation (Fig. 2). These cultures were identified as *Sclerotinia sclerotiorum* based on morphological characteristics such as sclerotial size and mycelium (Schwartz *et al.*, 2005).

Pathogenicity of two isolates, collected from Matanzas and Mayabeque provinces, were determined by inoculating healthy bean plants (var. BAT-304) by wounding the stems and placing mycelial plugs (5 mm diameter), excised from five-day-old PDA cultures, onto each wound and wrapping with plastic tape. Control plants were treated similarly except that agar discs did not contain *Sclerotinia* mycelium. Plants (four per treatment) were incubated at 25°C for seven days. Pathogenicity tests were

carried out three times. Inoculated stems developed symptoms of wilt and necrosis, including formation of white mycelium and sclerotia on the stem surface, whereas control plants remained healthy. *S. sclerotiorum* was successfully recovered from infected plant tissue, fulfilling Koch's postulates.

White mould occurs in most of the common bean producing regions of the world, causing significant crop damage. For example, in Florida *S. sclerotiorum* caused an estimated 5-10% annual loss (Purdy, 1979), while reductions of 40-70% in dry bean yields grown under irrigation are commonly observed in Brazil (Nasser *et al.*, 1995). In Cuba, where similar climatic conditions exist, similar yield losses can be expected. Despite beans being a traditional crop in Cuba planted twice a year and extensively studied for phytopathogenic fungi, white mould of beans caused by *S. sclerotiorum* has not been previously reported in Cuban fields. Therefore, this is the first report of the presence of white mould caused by *S. sclerotiorum* in Cuba.

References

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Figure 1



Figure 2

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