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Assessing the phenotypic and genotypic diversity of *Sclerotinia sclerotiorum* in France

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Sclerotinia sclerotiorum is a highly polyphagous ascomycete that can attack more than 400 plant species among which vegetables and arable crops. In order to improve the efficiency of plant protection against white mould, knowledge on the *S. sclerotiorum* populations has to be acquired. In the framework of national project “Scleroleg”, *S. sclerotiorum* isolates were collected on symptomatic plants in several French regions. Their genetic and phenotypic diversity was assessed.

The aggressiveness of 103 isolates collected from bean, canola, carrot, lettuce, melon and witloof chicory was compared on melon, tomato and lettuce in controlled conditions. All isolates were able to cause symptoms on detached leaves of the three plant species. The relative level of aggressiveness of an isolate, compared to the others, tended to be similar regardless of the plant species on which it was assessed. On average, the isolates collected from lettuce were slightly more aggressive than the others on all three host plants tested. For the rest of the isolates, there was no link between host of origin and aggressiveness, suggesting that there is no marked host specialization of the fungus. These data were partly supported by the results of genetic characterization of 200 *S. sclerotiorum* isolates with 16 microsatellites markers. While there was no significant geographic differentiation among isolates (some haplotypes were shared by isolates collected on different species and separated by up to 600 km), the lettuce isolates showed strong and significant genetic differentiation with all others.

The reasons for these differences remain to be elucidated. However, our study clearly suggests that sclerotia of *S. sclerotiorum* generated on one host crop will likely be capable of providing inoculum for the next susceptible crop grown in the same plot and possibly for crops in neighbouring fields, via the production of airborne ascospores.

Keywords: white mould, epidemiology, aggressiveness, genetic differentiation