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Sclerotinia sclerotiorum: A Potential Mycoherbicide for Californian Thistle, *Cirsium arvense*, Control in Permanent Pastures?

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Sclerotinia sclerotiorum, although causing watery soft rot disease on a wide range of economic plants, is shown to have potential as an effective mycoherbicide against *Cirsium arvense* in permanent pastures. Greenhouse trials comparing a food-source inoculum with a mycelial preparation, revealed rapid killing of the host under high humidity conditions and moderate temperature using the food source inoculum. Effective but slower pathogenesis was obtained at low relative humidity. Plant death was mainly through stem infection. The thistles regrew from below-ground, but almost all of these regrowth shoots were killed after a period. The fungus showed good in vitro growth at relatively low temperatures with optimum growth occurring at 20°C, suggesting that the pathogen would still be effective during cool weather. Pathogenicity against ryegrass and white clover was poor, indicating that *S. sclerotiorum* could be used as a selective mycoherbicide in such pastures. Methods of containment of the pathogen under high risk situations are also discussed.