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Studies on the Pathogenicity and Control of Bulb Rot in Onion Caused by *Sclerotium rolfsii*

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ABSTRACT. The plant pathogenic fungus – Sclerotium rolfsii which attacked and caused the bulb rot disease in onion (Allium cepa var. Puna red) in the Jaffna region was isolated under the name Sclerotium rolfsii Isolate V.

The fungus appeared in the nursery beds of onion at the age 30 – 45 days and caused yellowing of the tips of onion scathes, formation of necrotic lesions and wilting of entire foliage together with bulb rot. The rotten bulbs completely lost their root system and started to develop white fans of mycelia and numerous tiny brown sclerotia on the surface.

The pathogen had a temperature optimum between 30 and 35 C for all stages in the life cycle, a pH optimum around 5.5 and grew luxuriously in the presence of light. It produced 100% mortality in the seedlings of onion under optimum conditions. Studies on the pathogenicity of this particular isolate of Sclerotium rolfsii showed that it can attack a wide variety of plants including crops such as onion, chilli, rice, tomato, brinjal, bean and other legumes, and weeds which are usually found in the Jaffna area.

Experiments on the control of Sclerotium rolfsii indicated that Trichoderma harzianum Rifai., a common inhabitant of soil and an antagonist that is hyperparasitic on Sclerotium rolfsii, could be used as a successful bio – control agent.

Agrochemicals containing pentachloro nitro benzene as the active ingredient (monit, terraclor and brassicol) produced effective control of germination of sclerotia and mycelial growth of Sclerotium rolfsii at concentrations 100, 500 ppm and 10 ppm or more, respectively. High dosages of the above fungicides (1000 ppm) made the viable sclerotia to undergo degradation through a germination – lysis phenomenon.