

# Suppression of *Sclerotinia sclerotiorum* (Lib.) de Bary Causing Stalk Rot by Rhizosphere fungi of Cauliflower

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Saprun valley of Himachal Pradesh is famous for seed production of late Snowball Cauliflower where recurrence of stalk rot incited by *Sclerotinia sclerotiorum* (Lib.) de Bary has caused huge losses, (84-100%) (Sharma, 1979). Since the disease is soil borne and the pathogen perpetuates through sclerotia, its management by the use of chemicals is uneconomical. Investigations were, therefore, undertaken to isolate the rhizosphere fungi of cauliflower and to study their inhibitory effect on the pathogen.

Four rhizosphere fungi namely *Trichoderma viride* Pers. ex. Fr., *Fusarium solani* (Mart.) App. & Wollenw., *Rhizopus arrhizus* Fischer and *Aspergillus terreus* Thom. were isolated from the soil samples collected from the cauliflower growing areas and grown in conical flasks containing Czapek's Dox medium. The mycelial mat was filtered through Whatman No. 1 filter paper after 14 days. The culture filtrates were centrifuged at 3000 rpm for 30 min and the supernatants were taken for the studies. The inhibitory effect of the culture filtrate on the pathogen was estimated by the method suggested by Singh and Webster (1973) by taking 0.2 ml in a well made in the centre of Petri plate having 1 cm thick layer of potato dextrose agar medium. Sterilized Czapek's Dox medium was used as control. Three 10 mm size mycelial discs of *S. sclerotiorum* were placed around the well. The plates were incubated at 25°C for three days. The per cent inhibition of the test fungus was calculated by the formula given by Vincent (1947).

Culture filtrates of all the rhizosphere fungi of cauliflower inhibited the growth of the pathogen (Table 1). *F. solani* and *A. terreus* caused 18.6 and 16.6 per cent suppression of *S. sclerotiorum*, respectively. *R. arrhizus* was least effective since it caused only 2.93 per cent suppression of *S. sclerotiorum*. The induction of suppression might be due to various types of metabolites viz., fusaric

acid (Lily, 1983), citric acid (Prescott and Dunn, 1959; Singh and Mehrotra, 1983) and rhizopin (Das and Pal, 1974) produced by *Fusarium*, *Aspergillus* and *Rhizopus*, respectively. *F. solani* and *A. terreus* were also found effective in controlling the disease under glasshouse conditions by Gupta and Agarwala (1988).

Table 1. Inhibition of *Sclerotinia sclerotiorum* by rhizosphere fungi of cauliflower

Treatments	Inhibition (%)
<i>Trichoderma viride</i>	10.0
<i>Fusarium solani</i>	18.7
<i>Rhizopus arrhizus</i>	2.9
<i>Aspergillus terreus</i>	16.7
Control	0.0

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Key words: *Sclerotinia sclerotiorum*, Stalk rot, Rhizosphere fungi, Cauliflower.

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