

Cultural and physiological studies on *Sclerotium rolfsii* causing scleotium wilt of potato

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SUMMARY

Sclerotium wilt of potato caused by *Sclerotium rolfsii* Sacc. is one of the most important soil borne diseases which is attaining the major status in potato in Karnataka. Cultural characters were studied on fourteen different solid and liquid media. Among solid media tested against *Sclerotium rolfsii*, the maximum radial growth was observed on oat meal agar (90 mm), potato dextrose agar (90 mm) and Sabouraud's agar (90 mm) followed by carrot dextrose agar (88 mm). These four were at par with one another and significantly superior over the rest of all other media tested. Among liquid media tested the maximum mycelial weight was observed on oat meal extract broth (190.9 mg), potato dextrose broth (190.4 mg), host leaf extract (188.1 mg). These were at par with one another and significantly superior over the rest of all other liquid media tested. followed by Richards's broth (174.8 mg). The maximum growth of the fungus was observed at a temperature of 30°C (538.60 mg) which was significantly superior to all other temperature levels tested. followed by 25°C (480.16 mg), 35°C (380.40 mg) and 20°C (349.20 mg). The maximum dry mycelial weight of the fungus was noticed at a pH level of 5.0 (547.00 mg) followed by 4.0 (493.33 mg) and 6.0 (355.66 mg). The exposure of the fungus to alternative cycles of 12 hrs light and 12 hrs darkness for ten days resulted in the maximum dry matter (387.62 mg) which was significantly superior over other two treatment tested. The dry mycelial weight of fungus exposed to continuous light resulted in moderate growth (329.72 mg) and continuous darkness resulted in minimum growth (134.07 mg). The exposure of the fungus to alternate cycles of 12 hrs light and 12 hrs darkness for ten days resulted in maximum radial growth of *Sclerotium rolfsii* i.e., 89.42 mm, which was significantly superior over other two treatments tested. The radial growth of fungus exposed to continuous light resulted in colony diameter of 86.05 mm.

Key Words : *Sclerotium rolfsii*, Light, Temperature, pH

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Potato (*Solanum tuberosum* L.) is one of the important commercial vegetable crops in India. It is the world's fourth important food crop owing to its great yield potential and high nutritive value and accounts for nearly half of the world's annual output of all root and tuber crops (Thortan and Siczka, 1980).

Commercially potato is propagated through tubers. Many

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disease causing agents viz., viruses, fungus, bacteria, nematode, viroids and phytoplasmas are reported on potato. Among the fungal diseases, wilt caused by *Sclerotium rolfsii* Sacc. has attained the economic importance. In recent years, this disease is increasing and causing huge losses in potato (Paul Khurana, 1998). To findout the strategy for management of the disease it is necessary to evaluate fungicides and bioagents etc. against the pathogen *in vitro*. Therefore, the present study was undertaken to findout which media, temperature, pH and light sources support maximum mycelial growth of the fungus.

MATERIALS AND METHODS

Growth characters on solid media :

The growth characters of *Sclerotium rolfsii* were studied on fourteen solid media viz.,