

Seed treatment with *Streptomyces* spp. strains inhibit *Colletotrichum Sublineolum* in sorghum seed.

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The effectiveness of *Streptomyces* spp. strains to control *Colletotrichum sublineolum* (Ces.) G. W. Wils. (syn. *C. sublineolum* Henn. In Kab. and Bubák) races and isolates were evaluated *in vitro* and on sorghum seeds. The ability of *Streptomyces* spp. strains to produce chitinase was tested by qualitative method followed by quantification. The present study included nine physiologic races (31A, 15A, 31B, 30B, 15B, 13B, 31C, 30C, 29E), four isolates (51, 57, 126, 148) of *C. sublineolum* and four strains of *Streptomyces* spp. (DAUFPE 11470, DAUFPE 14632, CMS 2A, CMS 4A). The effectiveness of *Streptomyces* spp. strains to control *C. sublineolum* races and isolates, *in vitro*, was evaluated by recording the diameters (mm) of the zone of mycelial inhibition. Variation in the inhibition pattern of four *Streptomyces* spp. strains was observed with respect to different races and isolates of *C. sublineolum*. The strain DAUFPE 11470 was the most effective in inhibiting all the *C. sublineolum* races and isolates (54 to 60 mm inhibition zone) followed by the strain DAUFPE 14632 (18 to 55 mm inhibition zone). The strain DAUFPE 11470 could reduce the fungal incidence in sorghum seed by 88.5 to 99.1% for the most virulent race and least virulent isolate. No control was achieved by isolates CMS 4A and CMS 2A. All four *Streptomyces* spp. strains produced chitinase enzyme, but the activity was highest in the DAUFPE 11470. The results indicate that *Streptomyces* spp. strains have potential as biological control agents against *C. sublineolum* races and isolates in sorghum seeds and the chitinase activity may be involved in the biocontrol process. However the biocontrol effectiveness depends on the strains to be used as biological control agent and the physiological race and isolate of *C. sublineolum*.

Keywords: Biocontrol, Antracnose, Chitinase, Actinomycete