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Optimization and production of antifungal hydrolysis enzymes by streptomyces aureofaciens against Colletotrichum gloeosporioides of mango

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ABSTRACT

We isolated naturally occurring actinomycetes with an ability to produce metabolites having antifungal property against, *Colletotrichum gloeosporioides*, the causal agent of mango anthracnose. One promising strain was strong antifungal activity, was selected for further studies. Based on the physiological and biochemical characteristics, the bacterial strain was identical to *Streptomyces aureofaciens*. Culture filtrate collected from the exponential and stationary phases inhibited the growth of fungus tested, indicating that growth suppression was due to extracellular antifungal metabolites present in culture filtrate. Isolate highly produced extracellular chitinase and β -1,3-glucanase during the exponential and late exponential phases, respectively. In order to standardize the metabolite production some cultural conditions like different incubation time in hours, pH, carbon sources and concentrations and nitrogen source were determined. During fermentation, growth, pH and hydrolysis enzymes production were monitored. Treatment with bioactive components exhibited a significantly high protective activity against development of anthracnose disease on mango trees and increased fruit yield.

KEYWORDS

 Antifungal, *Colletotrichum Gloeosporioides*, Mango Anthracnose and *Streptomyces Aureofaciens*.

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