

Karakterisasi penghambatan *Fusarium oxysporum* schlecht f. sp. cubense foc oleh dua isolat aktinomisetes secara in vitro =
Characterization of in vitro inhibition activity from two actinomycetes isolates toward *Fusarium oxysporum* schlecht f sp cubense

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Abstrak

Penyakit Panama pada tanaman pisang disebabkan oleh kapang patogen *Fusarium oxysporum* f. sp. cubense. Telah dilakukan penelitian untuk karakterisasi penghambatan Aktinomisetes terhadap *Fusarium oxysporum* f. sp. cubense secara in vitro menggunakan sel hidup dan filtrat kultur bebas sel. Isolat Aktinomisetes LAI-I dan L31 diketahui menghasilkan enzim kitinase, protease, dan antibiotik yang dapat menghambat pertumbuhan, menyebabkan perubahan morfologi hifa berupa penebalan pada ujung-ujung hifa, serta menghambat germinasi spora *Fusarium oxysporum* f. sp. cubense. Perhitungan statistik menunjukkan adanya perbedaan yang nyata antara kelompok kontrol, perlakuan LAI-I, dan perlakuan L31. Hasil tersebut memperlihatkan adanya kemampuan isolat LAI-I dan L31 menghambat *Fusarium oxysporum* f. sp. cubense.

The Panama disease in banana plants is caused by the pathogenic fungi *Fusarium oxysporum* f. sp. cubense. Research has been conducted to characterize the inhibition mechanism of Actinomycetes towards *Fusarium oxysporum* f. sp. cubense in vitro by using living cell and cell-free culture filtrate. Actinomycetes isolates LAI-I and L31 produce chitinase enzyme, protease enzyme, and secondary metabolites that can inhibit the growth, lead morphological changes of hyphae as swollen at the end of the hypha, and inhibit spore germination of *Fusarium oxysporum* f. sp. cubense. The statistic reveals the significant differences between control, LAI-I treatment, and L31 treatment. The result shows the ability of isolate LAI-I and L31 to inhibit *Fusarium oxysporum* f. sp. cubense.