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Characterization of the chitinase from *Cellulosimicrobium cellulans* CH-10

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A bacterial strain with colloidal chitin hydrolysis activity was isolated from tomato cultivated healthy soil at Taejeo, Pusan. The isolate was identified as *Cellulosimicrobium cellulans* CH-10 by analyzing its morphological, physiological properties and 16S rDNA sequences. *C. cellulans* CH-10 was shown to excrete chitinases into the culture supernatant when cultivated in a liquid culture containing colloidal chitin. After concentration of the culture supernatant by precipitation with ammonium sulfate, the induced chitinases was analyzed by in-gel chitinase assay using carboxymethyl-chitin-remazol brilliant violet 5R (CM-chitin-RBV) as a substrate. Three protein bands possessing chitinase activity were obtained with apparent molecular masses of about 33, 47 and 73 kDa, respectively. When *C. cellulans* CH-10 isolate was co-cultured with the fungal pathogen *Fulvia fulva* TF13, causing tomato leaf mold, in PDB media, the CH-10 isolate showed a potent antifungal activity against the pathogen. The microscopic analysis suggested that the chitinase produced from the CH-10 isolate might act on the cell wall of *F. fulva* resulting in malformation of fungal hyphae.