

<b>Thesis Title</b>	Isolation and Selection of Chitinase Producing Bacteria	
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### Abstract

Isolation and selection of chitinase producing bacteria from different soil samples were done. Severity isolates of bacteria capable of growing on agar medium containing chitin as carbon source were isolated. Each isolate was tested for chitinase production by culturing in the enzyme production medium (EPM) for 5 days with shaking at 200 rpm. Isolate D<sub>5</sub> from soil at the experimented plots, Department of Agronomy, Faculty of Agriculture, Chiang Mai University was selected for further studies. This isolate showed the highest chitinase production giving an enzyme activity of 14.667 munit/ml enzyme and specific activity 46.312 munit/mg protein. Morphological and biochemical examinations revealed that isolate D<sub>5</sub> was *Chromobacterium violaceum*. This species grew well on nutrient agar pH 7.0 at room temperature ( $25^{\circ} \pm 2^{\circ}\text{C}$ ), giving purple colonies.

The optimum conditions for chitinase production by *Chromobacterium violaceum* were modified EPM containing 1% colloidal chitin, 1.5% urea, 0.03% MgSO<sub>4</sub>.7H<sub>2</sub>O, 0.03% CaCl<sub>2</sub>.6H<sub>2</sub>O and 0.1% trace element, pH 7.0 incubating for 2 days at room temperature. The optimum conditions for enzyme activity were incubation of enzyme at 50°C, pH 5.0 for 45 minutes. The highest chitinase was 46.925 munit/ml enzyme and specific activity was 130.259 munit/mg protein. The enzyme stabilized at 30°C and 40°C, pH 6.8. The best method for preserving the enzyme was freezing which could be kept over 3 months.