

# IDENTIFICATION AND CHARACTERIZATION OF SOIL-ISOLATED *STREPTOMYCES* SJE177 PRODUCING ACTINOMYCIN

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**Abstract.** One hundred seventy-seven actinomycetes strains were isolated from soils collected from fruit orchards in Thailand. All were tested for antibacterial activity against seven pathogenic bacteria using co-cultivation methods. Forty strains (22.6%) were active against at least one indicator bacteria. Twenty-seven strains (15.3%) inhibited only gram-positive bacteria, four strains (2.3%) inhibited only gram-negative bacteria, and nine strains (5.1%) showed activity against both. Strain SJE177 had potent activity against all tested bacteria, and was selected for further investigation. A crude ethyl acetate extract of this strain retained inhibitory activity as tested by disk-diffusion method. Analysis of morphological and biochemical characteristics and the 16S rRNA gene sequence indicated this strain belonged to the genus *Streptomyces*. The strain formed a monophyletic line in a phylogenetic tree of 16S rRNA gene sequences with other *Streptomyces* reference strains. High performance liquid chromatography (HPLC) analysis showed SJE177 produced actinomycin. Since many isolates showed inhibitory activity against indicator bacteria, these results suggest Thai soil could be an interesting source to explore for antibacterial substances.

**Key words:** *Streptomyces*, antibacterial activity, co-cultivation method, actinomycin, Thailand

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