
Isolation and Screening for Inhibitory Activity on *Alternaria brassicicola* of Endophytic Actinomycetes from *Centella asiatica* (L.) Urban

Phuakjaiphaeo, C. and Kunasakdakul, K. *

Department of Entomology and Plant Pathology, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand.

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Abstract A total of 36 actinomycete strains were isolated from *Centella asiatica* (L.) Urban on IMA-2 medium. There were 19 strains from stolons, nine strains from nodes with roots, four strains from leaves and four strains from fruits. The cultural characteristics on the isolation medium were used to divide all 36 strains into eight groups based on the reverse color of the streaked-substrate, color and growth rate of their aerial mycelia. Spore chain types were also determined, and the results showed that all groups generally produced rectus-flexibilis, retinaculum-apertum and spiral types and did not produce any diffusible pigment in the medium. Their antifungal activity against *Alternaria brassicicola* was screened using the dual culture method. Nine strains (25%) from various plant parts exhibited high inhibitory activity (73.40-80.0%) against the pathogen. The rest of the strains showed no activity or weak to moderate inhibitory activity against *A. brassicicola*. Results in inhibition of the pathogen radial growth indicated that 36.11% of the strains showed moderate inhibitory activity (66.79% – 73.39%). In addition, strain CEN26 isolated from a node with roots was selected to determine its antifungal activity by microscopic observation. Morphological disorders of the pathogen, swollen hyphae and frequent septa of the treated pathogen mycelia were found after dual culture testing for 6 days compared to the normal growth in control treatment.

Key words: *Centella asiatica* (L.) Urban, endophytic actinomycetes, *Alternaria brassicicola*

Introduction

Centella asiatica (L.) Urban is a medicinal plant which is widely used in Thailand for treatment of several diseases such as skin problems (chronic and obstinate eczema, leprosy, and abscesses), diarrhea and urinary problems, heart disease, and high blood pressure (Jamil *et al.*, 2007). Pharmaceutical studies of this plant mostly presented its benefit as antioxidant, anti-inflammatory and

* Corresponding author: Kunasakdakul, K.; Email: kaewalin.k3@gmail.com