Screening and production of antibacterial compound from Trichoderma spp. against human-pathogenic bacteria

Abstract
This study focuses on the production of antibacterial compound from Trichoderma spp. Screening of antibacterial activities in some Trichoderma spp. was investigated using CY80 medium. Trichoderma reesei and Trichoderma viride were highly effective toward human-pathogenic bacteria tested. T. viride and T. reesei were separately applied on Sephacryl S-200 column. Column fractions No. 56 to 64 for T. viride and fractions No. 57 to 66 for T. reesei had inhibitory effect against the most pathogenic bacteria examined. T. reesei and T. viride Sephacryl S-200 fractions with antibacterial activity were analyzed by Gas chromatography-mass spectrometry (GC-MS). The product with the highest peak (95%), using different libraries, was kojic acid. The yield of kojic acid crystals from T. reesei and T. viride Sephacryl S-200 fractions were 3 and 5 g/L, respectively. Physical analysis of kojic acid with respect to UV, IR, 1H NMR analysis and melting point was examined. The minimum inhibitory concentration (MIC) of kojic acid and augmentin, as control, against human-pathogenic bacteria were evaluated. Kojic acid and augmentin showed a similar time-killing kinetics with human-pathogenic bacteria. The level of kojic acid increased with decreased level of reducing sugar during the growth of T. reesei and T. viride suggesting that the enzyme system for the synthesis of kojic acid found in the cell of these fungi. © 2011 Academic Journals.

Author Keywords
Human-pathogenic bacteria; Kojic acid; Minimum inhibitory concentration; Trichoderma spp

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