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

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Abstract

This study focus on the production of antibacterial compound from *Trichoderma* spp. Screening of antibacterial activities in some *Trichoderma* spp. was investigated using CYS80 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 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, ¹HNMR 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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