Charactrization Of Bioactive Compounds Isolated From Endophytic Streptomyces Sp. SUK 25 Against Methicillin Resistant Staphylococcus aureus

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The needs for new antibiotics continue to grow due to the widespread of antibiotic-resistant pathogens causing lifethreatening infections. The bacterium methicillin resistant Staphylococcus aureus expresses a widespread virulence factors and antimicrobial resistance determinants that lead to increasing mortality, morbidity, and health care costs. The endophytic Streptomyces species that resides in the living tissues of plants are generally considered a source that has huge potential for the novel bioactive molecules, with medicinal and pharmaceutical properties. This study is aimed to determine the anti-MRSA activity of the bioactive compounds derived from endophytic Streptomyces sp., SUK 25 which was isolated from the root tissues of Zingiber spectabile. The production of secondary metabolites by this strain was optimized through Thornton's „ ” ‘ – Š • ‡ † ‹ ƒ ä • ‘ Ž ƒ – ‹ ‘ • á ’ — ” ‹ Ð ‹ … ƒ – ‹ ‘ • á ƒ • † ‹ † ‡ • – ‹ Ð ‹ … ƒ – ‹ ‘ • ‘ ^ – Š ‡ „ ‹ ‘ ƒ … – ‹ ˜ ‡ … chromatography, HPLC, and FT-IR, HR-LCESIMS and NMR. During primary and secondary screening, SUK 25 showed potentia activity against several strains of MRSA ATCC. Bioactivity test was carried out using disk diffusion method for thirteen fractions isolated using column chromatography methods to determine the bioactivity of each fraction against MRSA ATCC v u u r r ä ‡ ˜ ‡ • „ ‹ ‘ ƒ … – ‹ ˜ ‡ … ‘ • ’ ‘ — • † • ™ ‡ ” ‡ ‹ • ‘ Ž ƒ – ‡ † ƒ • † ‹ † ‡ • – ‹ ^ › ä ‡ – ‡ ” • ‹ • ƒ – ‹ ‘ • ‘ ^ v u u r r – ” ‡ ƒ – ‡ † ™ ‹ – Š • — „ ‹ • „ ‹ „ ‹ – ‘ ” › … ‘ • … ‡ • – ” ƒ – ‹ ‘ • ‘ ^ ƒ • † … › … Ž ‘ æ ’ ” ‘ Ž › Ž a gene expression with up regulation of 90 genes and down regulation of 131 genes. In conclusion, this study demonstrates that endophytic Streptomyces SUK 25 has the ability to produce several natural compound derivatives with potential bioactivity against MRSA with low cytotoxicity against HepaRG cells.

Biography

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