Production of Hydroxy Marilone C as a Bioactive Compound from Streptomyces badius

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Abstract : Hydroxy marilone C is a bioactive metabolite was produced from the culture broth of Streptomyces badius isolated from Egyptian soil. hydroxy marilone C was purified and fractionated by silica gel column with a gradient mobile phase dicloromethane (DCM) : Methanol then Sephadex LH-20 column using methanol as a mobile phase. It was subjected to many instruments as Infrared (IR), nuclear magnetic resonance (NMR), Mass spectroscopy (MS) and UV spectroscopy to the elucidation of its structure. It was evaluated for antioxidant, cytotoxicity against human alveolar basal epithelial cell line (A-549) and human breast adenocarcinoma cell line (MCF-7) and antiviral activities; showed that the maximum antioxidant activity was 78.8 % at 3000 µg/ml after 90 min. and the IC50 value against DPPH radical found about 1500 µg/ml after 60 min. By Using MTT assay the effect of the pure compound on the proliferation of A-549 cells and MCF-7 cells were 443 µg/ml and 147.9 µg/ml, respectively. While for detection of antiviral activity using Madin-Darby canine kidney (MDCK) cells the maximum cytotoxicity was at 27.9% and IC50 was 128.1µg/ml. The maximum concentration required for protecting 50% of the virus-infected cells against H1N1 viral cytopathogenicity (EC50) was 33.25% for 80 µg/ml. This results indicated that the hydroxy marilone C has a potential antitumor and antiviral activities.

Keywords : hydroxy marilone C, production, bioactive compound, Streptomyces badius

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