

Rauvolfine B Isolated from the Bark of Rauvolfia reflexa (Apocynaceae) Induces Apoptosis through Activation of Caspase-9 Coupled with S Phase Cell Cycle Arrest

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Abstract : In this study, three indole alkaloids namely; rauvolfine B, macusine B, and isoreserpiline have been isolated from the dichloromethane crude extract of Rauvolfia reflexa bark (Apocynaceae). The structural elucidation of the isolated compounds has been performed using spectral methods such as UV, IR, MS, 1D, and 2D NMR. Rauvolfine B showed anti proliferation activity on HCT-116 cancer cell line, its cytotoxicity induction was observed using MTT assay in eight different cell lines. Annexin-V is serving as a marker for apoptotic cells and the Annexin-V-FITC assay was carried out to observe the detection of cell-surface Phosphatidylserine (PS). Apoptosis was confirmed by using caspase-8 and -9 assays. Cell cycle arrest was also investigated using flowcytometric analysis. rauvolfine B had exhibited significantly higher cytotoxicity against HCT-116 cell line. The treatment significantly arrested HCT-116 cells in the S phase. Together, the results presented in this study demonstrated that rauvolfine B inhibited the proliferation of HCT-116 cells and programmed cell death followed by cell cycle arrest.

Keywords : apocynacea, indole alkaloid, apoptosis, cell cycle arrest

Conference Title : ICPSP 2014 : International Conference on Pharmaceutical Sciences and Pharmacology

Conference Location : Melbourne, Australia

Conference Dates : December 11-12, 2014