

Evaluating the Cell viability and Cytotoxicity of 50 Plant Extracts on MARC-145 cells

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Abstract

PRRS is characterized by reproductive failure of sows and respiratory problems of nursery and growing pigs. PRRSV infection can cause immunosuppression in pigs. Present management strategies mainly focus on the prevention of infection using vaccination but are not sufficient to eradicate the virus and provide complete immunity. Previous studies have discovered a few natural compounds and compositions that have antiviral activities on PRRSV. The aim of this study is to evaluate the cell viability and cytotoxicity of 50 plant extracts was investigated using MTT assay on MARC-145 cells, were made by a 2 fold serially dilution. The maximum non-cytotoxic concentration (MNCT) were used to determine the 90% cell viability detection in this study. The results showed that cytotoxicity of tested compounds were observed the maximum non-cytotoxic concentration (MNCT) initial from 2^{-2} (2 fold serially dilution) while clearly indicated that the cytotoxicity of different compounds on the same cell varied remarkably. A low-moderate toxicity was 42 compounds with MNCT ranging from 2^{-2} - 2^{-6} dilution. A strong toxicity was 8 compounds with MNCT ranging more than $\geq 2^{-11}$ dilution. The cytotoxicity of compounds on Marc-145 cells was in a dose-dependent manner which clearly indicated that the cytotoxicity of different compounds on the same cell varied remarkably. Cells morphological changes such as lyses, granulation, vacuolization in the cytoplasm, darkening of cell boundaries, and cell detachment. This study indicates that some compounds had not cytotoxicity on MARC-145 cells and may be useful for future application to the anti-PRRSV evaluation *in vitro*.

Keywords: plant extracts, MTT assay, cytotoxicity

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