

ABSTRACT

The study investigated the treatment potential of *Berberis aristata* root extract for nephrotoxicity induced by vancomycin. *Berberis aristata* was analyzed by use of two methods i.e. HPLC and GC-MS. HPLC chromatogram indicated the presence of berberine component by comparing the peaks at retention time, while GC-MS detected the presence of volatile compounds with no antioxidant activity. Vero cell lines were divided into three groups i.e. control (Cn, DMSO), Vancomycin(V1-V3) and treated(T1-T11) groups. The control groups were applied with 0.1% DMSO. Vancomycin group was applied with 0.6mg/ml, 3mg/ml, and 6mg/ml concentration of vancomycin, while treated groups were applied with (100µg/ml, 200 µg/ml, 400µg/ml) along with vancomycin (0.6mg/ml, 3mg/ml, and 6mg/ml) concentration. Expression of various antioxidant and proliferative markers including *p53*, *p21*, *Cas-4*, *Cas-5*, and *Cyt-c* were assessed on Vero cell lines by qPCR. Results suggested that the expression of all selected markers were found to be upregulated in vancomycin group with decrease of expression in treated groups, indicating the recovery from damage to kidney cells.