ABSTRACT

Natural polyphenolic compounds produced by plant exhibit many pharmacological effects including antioxidant, chemopreventive as well as anticancer properties. This study was conducted to investigate the effect of cyanarin (Artichoke, Cynara scolymus) and isoiruquin (Licorice, Glycyrrhiza uralensis) on doxorubicin (positive control) cytotoxicity in different cell lines including normal (Fibroblasts MCR-5 and Myoblasts H9c2) and cancer (colorectal HCT-116 and hepatocellular HEP-G2) cell lines. The Cytotoxic effect of doxorubicin, isoiruquin and cyanarin alone or in different combination was studied on cancer cell lines as well as normal cell lines. The results obtained indicated that both cyanarin and isoiruquin enhance the cytotoxicity of doxorubicin. Both cyanarin and isoiruquin also reduce the cardiotoxicity of doxorubicin on normal cardiac cell lines. The combination of the three drug (cyanarin, isoiruquin and doxorubicin) result in decrease the cytotoxicity of doxorubicin, which may indicate the presence of interaction and/or antagonism effect between cyanarin and isoiruquin. Cyanarin was found to enhance the growth of (HCT-116 and HEP-G2) this might suggest avoiding use of Artichoke in subjects’ susceptibility for these cancers. All results were evaluated using statistical path and showed significant findings. The mechanism of enhanced doxorubicin’s cytotoxicity by cyanarin or isoiruquin also require further investigation to explain the increasing and/or the decreasing effect of these polyphenolic compounds on cytotoxicity of doxorubicin. The current finding can help to start with safe minimum dose of two or three combination compounds in the context of clinical trials and practice.