

Anticancer activity and mediation of apoptosis in human HL-60 leukaemia cells by edible sea cucumber (*Holothuria edulis*) extract

Abstract

Sea cucumbers have been a dietary delicacy and important ingredient in Asian traditional medicinal over many centuries. In this study, edible sea cucumber *Holothuria edulis* was evaluated for its in vitro anticancer potential. An aqueous fraction of the edible sea cucumber (ESC-AQ) has been shown to deliver a strong cytotoxic effect against the human HL-60 leukaemia cell line. An induction effect of apoptotic body formation in response to ESC-AQ treatment was confirmed in HL-60 cells stained with Hoechst 33342 and confirmed via flow cytometry analysis. The up regulation of Bax and caspase-3 protein expression was observed while the expression of Bcl-xL protein was down regulated in ESC-AQ treated HL-60 cells. Due to the profound anticancer activity, ESC-AQ appears to be an economically important biomass fraction that can be exploited in numerous industrial applications as a source of functional ingredients.