

عنوان مقاله:

Putative mechanism for apoptosis-inducing properties of crude saponin isolated from sea cucumber (*Holothuria leucospilota*) as an antioxidant compound

محل انتشار:

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خلاصه مقاله:

Objective(s): Marine organisms are known as a potential source of natural products, which contain bioactive substances with therapeutic properties. Sea cucumbers are prominent among marine organisms because of their dietary and therapeutic applications. In addition, they have capacity of synthesizing saponins molecules and other metabolites with therapeutic properties such as antitumor, antimicrobial, anti-inflammatory and antioxidant activities. The aim of this study was to evaluate the antioxidant and pro-apoptotic effects of sea cucumber saponins (SCS) isolated from *Holothuria leucospilota* species. Materials and Methods: Evaluation of antioxidant activity of SCS was carried out by DPPH (1, 1-diphenyl-2-picrylhydrazyl), ABTS (azino-bis-3-ethylbenzothiazoline-6-sulfonic acid), power reducing and total antioxidant assays. The anti-proliferative effect was studied by MTT (3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide) assay. Mechanisms leading to apoptosis were also evaluated by fluorescence microscopy, flow cytometry and real time PCR. Results: The results showed that the DPPH and ABTS activities increased in a dose dependent manner. The reducing capacity enhanced with increasing concentration of the saponin extract (0 to 2 mg/ml). The SCS exhibited moderate total antioxidant activity. Evaluation of anti-proliferative effect revealed that SCS with IC₅₀ of about 6 µg/ml, can display a good cytotoxic activity in a dose dependent manner. Further apoptosis induction was confirmed by fluorescence microscopy and flow cytometry. Sea cucumber saponin was also found to exert a pro-apoptotic effect by increasing the expression of Bax and decreasing the expression of Bcl₂. Conclusion: These results indicate that the SCS may act as a natural antioxidant and antitumor agent

کلمات کلیدی:

Antioxidant, Apoptosis, MCFY cell line, Saponin, Sea cucumber

لینک ثابت مقاله در پایگاه سیویلیکا:

