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Anti-Oxidant and Anti-Cancer Activity of Helix aspersa Aqueous Extract

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Abstract : Helix aspersa, 'the garden snail' is a big land snail widely found in the Mediterranean countries, it is one of the most consumed species in the west of Algeria. It is commonly used in zootherapy to purify blood and to treat cardiovascular diseases and liver problems. The aim of our study is to investigate, the antitumor activity of an aqueous extract from Helix aspersa prepared by the traditional method on Hs578T; a triple negative breast cancer cell line. Firstly, the free radical scavenging activity of H. aspersa extract was assessed by measuring its capability for scavenging the radical 2,2-diphenyl-1-picrylhydrazyl (DPPH), as well as its ability to reduce ferric ion by the FRAP assay (ferric reducing ability). The cytotoxic effect of H. aspersa extract against Hs578T cells was evaluated by the MTT test (3-(4,5- dimethylthiazl-2-yl)-2,5- diphenyltetrazolium bromide)) while the mode of cell death induced by the extract has been determined by fluorescence microscopy using acredine orange/ethidium bromide (AO/EB) probe. The level of TNFα has also measured in cell medium by ELISA method. The results suggest that H. aspersa extract has an antioxidant activity, especially at high concentrations, it can reduce DPPH radical and ferric ion. The MTT test shows that H. aspersa extract has a great cytotoxic effect against breast cancer cells, the IC50 value correspond of the dilution 1% of the crude extract. Moreover, the AO/EB staining shows that TNFα induced necrosis is the main form of cell death induced by the extract. In conclusion, the present study may open new perspectives in the search for new natural anticancer drugs.

Keywords : breast cancer, Helix aspersa, Hs578t cell line, necrosis
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