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Anti-Cancerous Activity of Sargassum siliquastrum in Cervical Cancer: Choreographing the Fly's Danse Macabre

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Abstract : Sargassum siliquastrum is brown seaweed with traditional claims for some medicinal properties. This research was done to investigate the methanol extract of S. siliquastrum for antiproliferative activity against human cervical cancer cell line, HeLa and its mode of cell death. From methylene blue assay, S. siliquastrum exhibited antiproliferative activity on HeLa cells with IC50 of 3.87 µg/ml without affecting non-malignant cells. Phase contrast microscopy indicated the confluency reduction in HeLa cells and changes on the cell shape. Nuclear staining with Hoechst 33258 displayed the formation of apoptotic bodies and fragmented nuclei. S. siliquastrum also induced early apoptosis event in HeLa cells as confirmed by FITC-Annexin V/propidium iodide staining by flow cytometry analysis. Cell cycle analysis indicated growth arrest of HeLa cells at G1/S phase. Protein study by flow cytometry indicated the increment of p53, slight increase of Bax and unchanged level of Bcl-2. In conclusion, S. siliquastrum demonstrated an antiproliferative activity in HeLa cell by inducing G1/S cell cycle arrest via p53-mediated pathway.

Keywords : sargassum siliquastrum, cervical cancer, P53, antiproleferation
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