



Cytotoxic activity of a plant extract on cancer cells

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Chemoprevention by natural products may be considered a promising approach to cancer control and management [1]. Many studies have demonstrated antiproliferative, cytostatic and cytotoxic activities of phytochemicals against cancer cells [2]. In this study, a plant extract from Arctium lappa, Berberis vulgaris and Eschscholtia californica was tested as potential anticancer agent. The antitumoral activity of this plant extract was tested on four human cancer cell lines: MCF-7 (breast carcinoma cells), Huh-7 (hepatic carcinoma cells), HTB-43 (oropharyngeal carcinoma cells) and ECV-304 (urinary bladder carcinoma cells). The efficacy of the extract was compared to the common chemotherapeutic agent cyclophosphamide. Three plant extract concentrations were tested: 800, 650 and 450 ng/ml; for cyclophosphamide, three concentrations were assayed, according to literature data: 1300, 1000 and 850 ng/ml [3]. In addition, plant extract and cyclophosphamide were tested on two primary cell lines as controls, human gingival fibroblasts and human mammary fibroblasts. Cell viability was evaluated by the MTT [(3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide, Sigma] colorimetric assay and the new xCELLigence system (Roche) for real-time monitoring of cell viability. All concentrations of plant extract exhibited a high level of cytotoxicity on MCF-7, Huh-7, HTB-43 and ECV-304 cancer cells, similar to cyclophosphamide, though they slightly reduced viability of human gingival and mammary fibroblasts. Conversely, the conventional chemotherapeutic drug showed a marked cytotoxicity on control cells. The potential of the plant extract has been demonstrated in vitro on various types of cancers, suggesting a possible use of this natural product as a promising anticancer agent. Further studies are needed to ascertain its efficacy in vivo and to elucidate its mechanism(s) of action at molecular and biochemical levels.

References

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Key words -

Antitumor activity, anticancer agents, xCELLigence System, .phytotherapy, cancer chemoprevtion, natural products.