Bioassay guided fractio-nation and cytotoxic activity of Daucus carota var. boissieri

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Abstract

The hexane extract and the hydro-distilled essential oil from red carrot fruits (Daucus carota var. boissieri) were evaluated for their cytotoxic activity against human tumor breast cell lines (MCF-7). Cell viability was evaluated by MTT assay. The extract exhibited good cytotoxic activity shown through its low IC50 (9.12 ± 0.58 μg/ml) against the standard 5-Flououracil (8.46 ± 0.63 μg/ml). Phytochemical investigation of the hexane extract using column chromatography yielded three compounds; 8-methoxypsoralen (1), α-asarone (2) and 3,4,5-trimethoxy-benzaldehyde (3), a compound isolated for the first time from D. carota and from family Apiaceae. Structure elucidation of the isolated compounds was carried out on the basis of their spectral data analysis (IR, MS, 1H NMR an 13C NMR) The three isolated compounds were evaluated for their cytotoxic activity using the same conditions. Only compound (1) exhibited good cytotoxic activity (IC50; 9.38 ± 0.78 μg/ml), compound (2) had moderate activity (46.12 ± 1.31 μg/ml), while compound (3) had no cytotoxic activity (100.6 ± 3.11 μg/ml). These compounds need to be more investigated against other cell lines; also they are considered as a good substrate for future SAR study and modifications to produce more potent cytotoxic derivatives

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