In vitro Antioxidant and Antiproliferative Activities of Flavonoids from Ailanthus excelsa (Roxb.) (Simaroubaceae) Leaves

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The present study aimed to investigate the chemical composition, and the antioxidant and antiproliferative activities of Ailanthus excelsa, a plant used in Egyptian traditional medicine. Chromatographic separation of a methanol extract of A. excelsa leaves yielded four flavones, namely apigenin (1), apigenin 7-O-\textbeta-glucoside (2), luteolin (3), and luteolin 7-O-\textbeta-glucoside (4), and seven flavonols, namely kaempferol (5), kaempferol 3-O-\textalpha-arabinoside (6), kaempferol 3-O-\textbeta-galactoside (7), quercetin (8), quercetin 3-O-\textalpha-arabinoside (9), quercetin 3-O-\textbeta-galactoside (10), and quercetin 3-O-rutinoside (11). The A. excelsa extract tested in different in vitro systems (DPPH and FRAP assays) showed significant antioxidant activity. The potential antiproliferative activity of the A. excelsa extract and isolated flavonoids against five human cancer cell lines such as ACHN, COR-L23, A375, C32, and A549 was investigated in vitro by the SRB assay in comparison with one normal cell line, 142BR. The extract exhibited the highest inhibitory activity against C32 cells with an IC\textsubscript{50} value of 36.5 \mu g ml\textsuperscript{-1}. Interesting activity against COR-L23 was found with 10 (IC\textsubscript{50} value of 3.2 \mu g ml\textsuperscript{-1}). Compounds 1 and 3 inhibited cell growth in both amelanotic melanoma and malignant melanoma cells.

Key words: Ailanthus excelsa Flavonoids, Antioxidant, Antiproliferative