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Phytochemical and pharmacological studies of Iris persica L: Isolation and identification of bioactive compounds by using different chromatographic and spectroscopic techniques

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Genus Iris (*Iredaceae*) comprises over 300 species; 12 of them are present in Iraq. *Iris persica* has been used in Kurdish traditional medicine for the treatment of wound inflammation and tumor. However, chemical and biological aspects of *I. persica* have not yet been investigated. Dry flowers, bulbs and rhizomes of *I. persica* were exhaustively extracted by maceration at room temperature, solvents of increasing polarity: hexane, methanol, methanol/water 70:30. Chlorophylls were removed from the methanolic extracts of flowers by filtration on a C-18 reversed phase column. Subsequently, the methanolic extracts of the flowers, bulbs and rhizomes were separately fractionated by repetitive preparative MPLC, on C-18 reversed phase, affording four compounds as the major products: tectorigenin, embinin, isovitexin and trans-resveratrol-3-O-β-D-glucopyronoside. The cytotoxic activity was measured against six human cancer cell lines, the effects of two isolated compounds, Tectorigenin and embinin, on the proliferation of tumor cells were evaluated in comparison with the well-known antitumor drug cis-diamminedichloroplatinum (II) (cisplatin) by MTT assays. In particular, MCF7 and SkBr3 breast, endometrial Ishikawa, ovarian BG-1, mesothelioma IST-MES1 and lung A549 cancer cells were treated for 48 h with increasing concentrations of tested compounds. Compound P2 showed a stronger inhibitory activity than cisplatin in five cell lines from total of the six cell lines; MCF7, SkBr3, Ishikawa, BG-1, IST-MES1 and A549, embinin IC50±S.D of 6 (±3), 4(±1), 10(±3), 8(±2), 7(±2) and 9(±1)μM. while cisplatin (standard) IC50±S.D of 17(±4), 10(±2), 10(±3), 12(±3), 12(±2) and 13(±2)μM respectively. In conclusion, this is the first study on phytochemical study of *I. persica* as well as cytotoxic activity of embinin isolated flowers of *I. persica*, this study confirms that Embinin could be considered as a natural anticancer. At the same time, the present study confirms the traditional use of *Iris persica* L. in the treatment of tumor.

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