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Investigation of Anticancer and Antioxidant Potentials of *Pastinaca erzincanensis* on HeLa Cell Line

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Natural products are defined as pure compounds that have been isolated from plants, fungi, animals, or microorganisms. Secondary metabolites are produced biosynthetically from primary metabolites, which consist of carbohydrates, proteins and fats that are necessary for the survival of the organism in plants. It is established that certain endemic plants, which are also defined as ethnobotanical plants, are employed in the treatment of various diseases among the general public.[1] It has been demonstrated that Pastinaca sativa, a member of the Pastinaca family, displays a range of biological activities as a consequence of the research conducted. The present study investigated the total phenolic and flavonoid contents, antioxidant activities and cytotoxic effects of ethyl acetate, water and methanol extracts obtained from the aboveground parts of the endemic plant *Pastinaca erzincanensis* (*P.erzincanensis*). The total phenolic and total flavonoid contents of the extracts were evaluated separately by Folin–Ciocalteu and aluminium chloride colorimetric analyses, and antioxidant activities were evaluated by DPPH radical scavenging and iron ion reducing antioxidant power (FRAP) analyses.[2] The cytotoxic effects of the extracts were investigated on the HeLa cell line, a human cervical cancer cell line, with the use of the XTT analysis.[3] The Folin–Ciocalteu and aluminium chloride colourimetric analyses demonstrated that the methanol extract obtained from the plant exhibited a higher concentration of phenolic and flavonoid compounds. In addition, the methanolic extract demonstrated a considerably higher iron ion reducing capacity in parallel with the phenolic contents. The DPPH radical scavenging results demonstrated that all three extracts exhibited considerable efficacy, particularly in comparison to the standards. All extracts of the *P. erzincanensis* plant demonstrated superior efficacy in the DPPH test when compared to the synthetic standards, Trolox and BHT. The antioxidant results for *P. erzincanensis* demonstrated a notable degree of efficacy when compared to other plants within the Pastinaca family. Compared to similar plants belonging to the Pastinaca family, the antioxidant results of *P. erzincanensis* showed quite significant results. XTT analysis results revealed that the methanolic extract showed much stronger cytotoxicity against the tested HeLA cancerous cells, with much lower IC_{50} values. In conclusion, all these results suggest that *P. erzincanensis* provided a basis for the evaluation of different biological activities, thanks to the rich phytochemical content of the plant.

References:

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