

ANTIPROLIFERATIVE ACTIVITY AND APOPTOSIS INDUCTION OF *KELUSSIA ODORATISSIMA* CRUDE EXTRACT AGAINST VARIOUS HUMAN CANCER CELL LINES

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Introduction

Kelussia odoratissima Mozaff. (common Iranian name: Karafs-e-koochi, Wild celery) belonging to Apiaceae family is an indigenous and ethnomedicinal plant, which grows in restricted area of the Zagros ranges at high elevation of 2500 m in Iran. 3-butyridene-4,5-dihydrophthalide (z-Ligustilide) and 3-e-butyl phthalide, hitherto have been found as its major chemical composition (Rabbani et al., 2011). Likewise *K. odoratissima*, Z-Ligustilide and n-butyridenephthalide were reported as the main bioactive components of *Angelica sinensis* root extract. Researchers announced that *A. sinensis* extract induced apoptosis and led to cell cycle arrest at G0/G1 in brain tumor cell lines. n-butyridenephthalide and Z-ligustilide were cytotoxic against brain tumor cell lines, leukemia cells and colon cancer HT-29 cells (Chao and Lin, 2011). The present investigation was carried out to study the anticancer effects of different crude extracts of *K. odoratissima* leaves against different kinds of human tumor cell lines.

Materials and Methods

A549, MDA-MB 468, MCF7, HeLa, k562 and 2 others cell lines were separately cultured in RPMI-1640 medium completed with 10% fetal calf serum and penicillin / streptomycin (50 IU/ml and 50 µg/ml respectively). Collected leaves were dried and powdered, then were soaked in five solvents with different lipophilicity. The cytotoxic effects of different concentration of crude extracts on cultured cells were measured using the MTT assay. SPSS 16.0 software was used to perform statistical analysis. Three independent experiments were examined as the mean values ± standard mean deviation (SD). Analyze-of-variance (ANOVA) followed by LSD test (as the Post-Hoc) was used to assess significance between the test sample and solvent control. P-value < 0.05 was considered to be statistically significant.

Results and Discussion

Methanolic extract exerted higher anti-cancer activity in different kinds of cancer cells compared with other extracts. Furthermore, methanol extract induced a significant growth inhibition and apoptosis in a dose-dependent manner on all cancer cell lines. The present results suggest that valuable cytotoxic components could be isolated from this plant by partitioning methanol crude extract. Further investigations are underway in this regard.

Key words: *Kelussia odoratissima*, MTT assay, A549, MDA-MB 468, MCF7.

References

- Mohammed Rabbani, Seyed Ebrahim Sajjadi, and Masoud Sadeghi Chemical, 2011. Composition of the essential oil from *Kelussia odoratissima* Mozaff. and the evaluation of its sedative and anxiolytic effects in mice. *Clinics*, 66 (7): 843-848.
- Wen-Wan Chao and Bi-Fong Lin, 2011. Bioactivities of major constituents isolated from *Angelica sinensis* (Danggui). *Chinese Medicine*, 6: 29.



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