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Chemical constituents and cytotoxic activity of the essential oil of *Libanotis transcaucasica* Schischk from Iran

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Background and Aims: The genus Libanotis L. belongs to the family Apiaceae. The plants of this family possess peculiar botanical characteristics such as the typical umbellate inflorescences and are distributed widely from tropical to temperate regions where they often are used as spices or drugs. L. transcaucasica is a perennial plant distributed in Europe, northwest of Iran and also Caucasia. Libanotis montana var. lasiopetala, seseli libanotis var. armeniacum and seseli transcaucasicum are the other names for this plant. In the present study, chemical constituents of the essential oil from L. transcaucasica aerial parts and the cytotoxic activity of the oil are investigated.
Methods: The essential oil was isolated by hydrodistillation and analyzed by combination of gas chromatography (GC) and gas chromatography/mass spectroscopy (GC/MS). The cytotoxic activity was evaluated by MTT assay on four human cancerous cell lines (HeLa, LS180, MCF-7 and Raji).
Results: The GC/MS analysis of the oil resulted in 54 compounds, making up 84% of the total composition. Germacrene B (20.2%) was the most abundant constituent in this oil, followed by isospathulenol (11.0%), germacrene D (9.2%) and kessane (5.5%). The essential oil showed weak to moderate cytotoxic activity in the studied cancer cell lines.
Conclusions: Sesquiterpene hydrocarbons were identified as the main components of the essential oil (48.3%) and the cytotoxic activity observed in the oil may be contributed to the existence of this group of hydrocarbons in the plant.

Keywords: *Libanotis transcaucasica*; Essential oil; Cytotoxic activity