



Investigation of phytochemicals and antioxidant activity of *Nepeta ucranica* growing in Iran

K. Sardari^{1,2}, A. Delazar^{1,2}, R. Mousavi^{1,2}, F. Heshmati afshar^{1,2*}

¹Department of Pharmacognosy, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran.

²Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Background and objectives: The genus *Nepeta* is growing in Asia, Europe and the North Africa. The plants of this genus have been used in folk medicine for the antiseptic and astringent properties as topical remedies in cutaneous eruptions and snakes bites. Moreover, they are utilized as anti-tussive, anti-spasmodic, antiasthmatic, febrifuge and diuretic agents. Phytochemical studies of *Nepeta* genus have revealed the presence of monoterpenes, sesquiterpenes, diterpenes, triterpenes, flavonoids and phenols. In the current study, *Nepeta ucranica* has been investigated. **Methods:** The aerial parts of the plant were extracted using *n*-hexan, dichloromethane and methanol by maceration method. Dried methanol extract was subjected to C18Sep-Pak fractionation using a step gradient of MeOH-H₂O. Further, purification of the fractions by preparative reversed phase HPLC yielded three compounds. Structure elucidation for these compounds was accomplished by using NMR spectroscopy. The essential oil was obtained by hydro-distillation in a Clevenger extractor. The composition of the essential oil was determined by GC-MS. Antioxidant activity of extracts and the essential oil was assessed using DPPH. **Results:** Phytochemical study of the methanol extract of this plant yielded one iridoid, one flavonoid and one phenylethanoid. The study on the composition of the essential oil yielded 30 compounds which were mainly composed of sesquiterpens. The methanol extract showed the most potent antioxidant activity in DPPH assay. **Conclusion:** Flavonoid and phenylethanoid derivatives seem to be important antioxidant compounds in *Nepeta* species and might be useful in inflammatory conditions, cancer prevention and oxidative stresses.

Keywords: antioxidant, flavonoid, iridoid, *Nepeta ucranica*
