VOLATILES CONSTITUENTS FROM THE LEAVES, FLOWERS AND STEMS OF *CENTAUREA VLACHORUM* HARTVIG (*ASTERACEAE*), GROWING WILD IN ALBANIA

Entela Hodaj[1,2], Diamanto Lazari[1*], Lulezim Shuka[3]

[1]Laboratory of Pharmacognosy, School of Pharmacy, Faculty of Health Sciences, Aristotle University of Thessaloniki, GR-54124 Thessaloniki, Greece
[2]Department of Industrial Chemistry, Faculty of Natural Sciences, University of Tirana, Bld. ZOG I, 1001 Tirana, Albania.
[3]Department of Biology, Faculty of Natural Sciences, University of Tirana, Bld. ZOG I, 1001 Tirana, Albania

[*]e-mail: dlazari@pharm.auth.gr

Abstract

Centaurea vlachorum Hartvig is a rare endemic species known from only two mountains, Milea and Aftia of Northern Pindos, but in 2009 it was reported to occur also in Albania too. *Centaurea* species have been used in folk medicine, against menstrual disorders, vaginal candidiasis, as laxative, tonic, diuretic, expectorant and stimulant for liver and gallbladder function. Recently, some *Centaurea* species have been used in cosmetic preparations. So far, the volatile components of the aerial parts of *C. vlachorum* have not been analyzed.

The volatile constituents of the aerial parts (flowers, leaves and stems) of *C. vlachorum* were obtained by hydrodistillation and analyzed by gas chromatography-mass spectroscopy (GC-MS).

The volatiles of their components were represented mainly of oxygenated sesquiterpenes (63.1%, 61.3% and 46.9%) for leaves, flowers and stems, respectively. The major compounds resulted as follows: for the leaves - caryophyllene oxide (18.2%), spathulenol (15.6%), (E)-nerolidol (7.8%) and humulene epoxide II (7.5%), for the flowers - caryophyllene oxide (26.7%), spathulenol (15.7%), n-heneicosane (9.3%), and methyl linoleate (8.1%), and for the stems the major constituents were caryophyllene oxide (11.9%), spathulenol (9.5%), 13-epi-malool oxide (7.9%) and n-heneicosane (6.0%). Caryophyllene oxide was the most abundant constituent among all in the ratios of 11.9%, 18.2% and 26.7% from stems, leaves and flowers, respectively.

C. vlachorum is a completely unexploited plant, because of its rareness and inaccessibility, as it is restricted to high-altitude Albanian and Greek mountains. Our results reveal the first evidence for the volatile oil composition of leaves, stems and flowers of this species, and contribute to understanding its chemical profile. More investigations are in progress from our research group concerning the study of its non-volatile secondary metabolites.

***Key words**: Centaurea vlachorum Hartvig, Volatile oils, GC-MS.*