Results: The chemical composition of essential oils obtained by hydrodistillation of *F. communis* was investigated by GC and GC-MS. The essential oils yield is 0.2 (v/w). Sixty three constituents were comprised the 99.4% of the total essential oil extracted from the *F. communis*. The predominant compounds of *F. communis* were determined as α-eudesmol (35.5%), 2-Naphtalonemethanol (18%), di-epi-α-cedrene (3.5%) and t-muurolol (2.7%).

Conclusion: α-eudesmol was very largely predominant in the oils of *F. communis*. In addition, the results were discussed with the *Ferula* genus pattern in means of chemotaxonomy and natural products.

Keywords: *Ferula communis* subsp. communis, GC-MS, essential oil, α-eudesmol

**PA–088**

Composition of the Essential Oil of Endemics *Helichrysum arenarium* subsp. *aucheri* and *H. chionophilum* (*Asteraceae*) Growing Wild in Turkey

Ömer Elkıran, Eyüp Bağcı, Harun Evren
*Fırat University, Science Faculty, Biology Department, Elazığ, omer_elkiran@hotmail.com*

Objectives: In this study, the essential oil composition of endemics *Helichrysum arenarium* (L.) Moench subsp. *aucheri* (Boiss.) Davis & Kupicha and *H. chionophilum* Boiss. & Balansa from Turkey were analyzed by GC and GC-MS. The qualitative and quantitative essential oil contents of these species were determined and compared with each other.

Materials and Methods: *Helichrysum arenarium* subsp. *aucheri* specimens were collected during to flowering stage in July, 2010, at an altitude of 1100 m, Mucur (Kırşehir, Turkey) and *H. chionophilum* specimens were collected during the flowering stage in July, 2010, on Karababa Mountain, at an altitude of 2000 m, Gemerek (Sivas, Turkey). Voucher specimens are kept at the Fırat University Herbarium (FUH). Air-dried aerial parts of the plant materials (100 g) were subjected to hydrodistillation using a Clevenger-type apparatus for 3 h to yield. The essential oil was analyzed by using GC and GC-MS.

Results: The chemical composition of essential oils obtained by hydrodistillation of *H. arenarium* subsp. *aucheri* and *H. chionophilum* were investigated by GC and GC-MS. The essential oils yield 0.2 and 0.1 (v/w). Eighteen and eighty-six constituents were comprised the 99 and 86.4% of the total essential oil extracted from the *H. arenarium* subsp. *aucheri* and *Helichrysum chionophilum*, respectively. The predominant compounds of *H. arenarium* subsp. *aucheri* were determined as 1,8-cineole (41.7%), eicosane (24.7%), zonarene (5.4%), α-terpineol (3.4%) and *H. chionophilum* were determined as (E)-caryophyllene, (7.9%), 2-pentadecanone, 6,10,14-trimethyl (6.5%), α-pinene (3.9%) and nonanal (3.5%).

Conclusion: 1,8-cineole, eicosane, zonarene, α-terpineol were found as major compound in aerial parts of *H. arenarium* subsp. *aucheri*. However (E)-caryophyllene, 2-pentadecanone, 6,10,14-trimethyl, α-pinene and nonanal were found as major compound in aerial parts of *H. chionophilum*. The results were discussed with the *Helichrysum* L. genus pattern in means of chemotaxonomy and renewable resources.
Keywords: *Helichrysum arenarium* subsp. *aucheri*, *Helichrysum chionophilum*, *GC-MS*, essential oil, 1,8-cineole, (E)-caryophyllene.

PA–089

**Composition of the Essential Oil of Two *Salvia* Taxa (**Salvia sclarea** and **S. verticillata** subsp. **verticillata**, Lamiaceae) from Turkey.**

Şükrü Hayta, Gülden Doğan, Ebru Yüce, Eyüp Bağcı

*Bitlis Eren University, Art & Science Faculty, Biology Department, Bitlis, sukruhayta@hotmail.com*

*Fırat University, Science Faculty, Biology Department, Elazığ*

*Tunceli Vocational School, Tunceli Universty, Tunceli*

**Objectives:** In this study, the essential oil composition of *Salvia sclarea* L. and *S. verticillata* L. subsp. *verticillata* from Turkey were analysed by GC and GC-MS. The qualitative and quantitative essential oil contents of these taxa were determined and compared with each other.

**Materials and Methods:** *Salvia sclarea* L. specimens were collected during to flowering stage in May, 2010, at an altitude of 1400 m, Ovacık (Tunceli, Turkey) and *S. verticillata* specimens were collected during to flowering stage in June, 2009, at an altitude of 1380 m, Baskil (Elazığ, Turkey). Voucher specimens are kept at the Firat University Herbarium (FUH). Air-dried aerial parts of the plant materials (100 g) were subjected to hydrodistillation using a Clevenger-type apparatus for 3 h to yield. The essential oil was analyzed by using GC and GC-MS.

**Results:** The essential oil yields of *S. sclarea* and *S. verticillata* were found as 0.4 and 0.3 %v/w, respectively. Overall, thirty seven compounds which accounted for 97.9% in *S. sclarea* and seventy four constituents, which accounted for 98.6% of the total compositions of each oil are determined in *S. verticillata* L. subsp. *verticillata*. The spathulenol (19%), caryophyllene oxide (15.5%), linolyl acetate (11.3%) and linalool L (8.5%) were the major compounds of *S. sclarea* and the germacrene D (13.8%), spathulenol (10%) and limonene (4.5%) and 1.8-cineole (4.5%) were the main compounds of the *S. verticillata* L. subsp. *verticillata*.

**Conclusion:** In conclusion, spathulenol was found as major compound for both *S. sclarea* and *S. verticillata* while, the other main components were not showed similarity. In addition, the results were discussed with the *Salvia* L. genus pattern in means of chemotaxonomy, natural products and renewable resources.

**Keywords:** *Salvia sclarea, Salvia verticillata subsp. verticillata, GC-MS, essential oil, spathulenol*