CHEMIJA. 2004. T. 15. Nr. 4. P. 64–68


# Chemical composition of essential oils of *Artemisia absinthium* L. (wormwood) growing wild in Vilnius

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Plants of *Artemisia absinthium* L. were collected in six localities during 1999–2002. Ten essential oils were produced by hydrodistillation and analyzed by gas chromatography – mass spectrometry. The first major constituent of the oils was thujone (cis + trans: 11.2–36.3%, 7 samples) or trans-sabinyl acetate (20.0–36.0%, 3 oils). The second main constituent was trans-sabinyl acetate (9.8–22.1%, 6 oils), thujone (10.2–12.5%, 2 samples), trans-sabinene hydrate (11.0, one oil) or cis-chrysanthenyl acetate (11.1%, one sample). The third dominant component in 7 samples was β-pinene (4.3–10.4%) and in other three oils were myrcene (3.9%), 1,8-cineole (7.1%) and trans-sabinyl acetate (8.8%). One oil of trans-sabinyl acetate (31.0%) chemotype contained only traces of thujone, while another nine samples including 8.8–36.0% of sabinyl acetate consisted of 11.2–36.3% of thujones. The largest part of the essential oils was formed by oxygenated monoterpenes (47.1–66.7%). Compounds with sabinane carbon skeleton made up 33.9–61.0%. Eighty-four identified constituents comprised 70.5–91.3% of the oils.

**Key words**: *Artemisia absinthium* L., *Asteraceae*, essential oil composition, β-pinene, trans-sabinyl hydrate, cis-thujone, trans-thujone, cis-chrysanthenyl acetate, trans-sabinyl acetate

## INTRODUCTION

*Artemisia absinthium* L. (wormwood) is widespread in Lithuania [1]. The authors of [2] proposed that the local wormwood plants biosynthesized some biologically active compounds.

*A. absinthium* plants produced several chemotypes of essential oils in different countries [3–6]. The main chemotype of wormwood essential oils was thujone. The plants and their parts from Croatia contained notable amounts of (Z)-6,7-epoxyocimene (syn. (Z)-6,7-myroxide) besides the first major constituent trans-thujone [6]. Some volatile oils from North Italy [3], France [3, 6] and Spain [4, 5] did not contain thujones. The predominant components of the above oils were (Z)-6,7-epoxyocimene and/or (Z)-chrysanthenyl acetate. Two chemotypes were determined in Spain: one oil contained both the above compounds as the main ones, but another oil was characterized by (Z)-6,7-epoxyocimene with minor amounts of other constituents [4, 5]. (Z)-Chrysanthenol was the major component in oils from Central France [3]. Sabinyl acetate prevailed in some oils from different countries [3, 4]. High levels of thujanol and thujyl acetate (60–70%), myrcene (≤ 35%), camphor and 1,8-cineole were also determined in essential oils [3]. Thujones, trans-sabinyl acetate, cis-chrysanthenyl acetate and cis-epoxyocimene are the most common constituents in wormwood essential oils [3–6].

*A. absinthium* extracts and essential oils are used for healing various diseases [2, 3, 7, 8]. Anthelmintic, antibacterial, antifungal, insect repellent, narcotic, digestive, tonic and other bioactivities are characteristic of preparations from wormwood plants. Their stimulant property is dependent on bitter substances as artabsin (sesquiterpene lactone) and absinthin (dimer of sesquiterpene lactones) present in plant extracts [3].

Wormwood essential oil components 1,8-cineole, cis(α)- and trans (β)-thujones help people to withstand cold and other hardships of the Himalayan region [3]. Higher amounts of the above compounds are toxic [9, 10]. Seizures may be caused by 1,8-cineole and thujones for chronic users. Also, thujones may evoke dementia. The wormwood plants producing volatile oils of thujone type were used for Absinths production, which was banned for its toxicity and hallucinogenic effects [3, 9, 10]. The German Spirit law (29 Oct.1991) allowed up to 10 mg thujone/litre in drinks [10].

Large amounts of thujone (≤ 79.4%) and/or 1,8-cineole (≤48.4%) were contained in essential oils of wild *Tanacetum vulgare* L. (tansy) in some localities

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of Lithuania [11, 12]. Cultivated *Salvia officinalis* (sage) produced lower quantities of thujone (≤ 21.4%) and 1,8-cineole (≤ 8.2%) [13].

This study presents the chemical composition of essential oils from aerial parts of *Artemisia absinthium* L. collected in six habitats of Vilnius. The content of thujones varied from traces to 36.3% of the oil.

## MATERIALS AND METHODS

*Artemisia absinthium* L. plants were dried at room temperature (20–25 °C). Voucher specimens were deposited in the Herbarium of the Institute of Botany (BILAS), Vilnius, Lithuania. Numbers of growing localities: A-65243, B-65245, C-65244, D-65246, E-65255, F-65245a.

The essential oils were prepared by hydrodistillation for 2 h using a mixture of hexane and ether as a collecting organic solvent.

GC/MS analyses were performed using a chromatograph interfaced with an HP 5971 mass spectrometer (ionization voltage 70 eV) and equipped with a CP-Sil 8 CB capillary column (50 m × 0.32 mm i. d., film thickness 0.25 μm). The oven temperature was held at 60 °C for 2 min, then programmed from 60 °C to 160 °C with the increase rate of 5 °C $min^{-1}$, held for 1 min, then programmed from 160 to 250 °C at the rate of 10 °C $min^{-1}$, and isothermal at 250 °C for 5 min, using He as the carrier gas (1.0 mL/min). The injector and detector temperatures were 250 °C.

Qualitative analysis was based on a comparison of retention times, retention indexes and mass spectra with corresponding data in the literature [14] and computer mass spectra libraries (Wiley and NBS 54K).

## RESULTS AND DISCUSSION

Essential oils of *Artemisia absinthium* L. collected from six habitats of Vilnius city were examined. Thujones were the first or the second prevailing component of volatile oils in five (A–E) growth localities (Table 1). The oil of habitat F contained only traces of it. The plants were collected during three years (1999–2001) in A and B localities. The volatile oils produced in the little habitat B were of thujone chemotype. The sum of cis (α)- and trans (β)-thujones varied from 23.7 to 33.8%. The relation of thujone isomers varied more markedly than their sum. The percentage of cis-thujone changed from 4.2 to 23.5% and of trans-thujone from 0.2 to 29.6%. The content of the second major constituent, trans-sabinyl acetate, made up 9.8–19.1%. The differences in essential oil composition of wormwood plants collected in the large habitat A during three years were more marked than that in the small locality B. The close amounts of two major constituents permitted to attribute these oils to mixed chemotype. The amount of thujones was lower in the oils of habitat A (11.2–19.4%) than in samples from locality B (23.7–33.8%). The first predominant component thujone was in two oils and trans-sabinyl acetate in one sample from habitat A. The second main constituent in oils from the above locality was thujone or trans-sabinyl acetate or trans-sabinene hydrate. Variations of essential oil composition might be caused by the fact that wormwood plants had been collected in different parts of the large growing area of habitat A.

The volatile oils produced by plants from habitats C and D were of thujone type containing 36.0–36.3% of the major constituent. trans-Sabinyl acetate (12.4–22.1%) was the second main component in the above localities as in habitat B, while this compound (20.0–31.0%) was the first predominant constituent in the oils (of trans-sabinyl acetate type) from localities E and F. The oil of E contained 10.2% of thujones (the second main component), while the sample from locality F included only traces of it. The second major compound in the oil of locality F was cis-chrysanthenyl acetate (11.1%).

Six out of ten investigated essential oils contained thujone as the first major constituent and trans-sabinyl acetate as the second one. An opposite position of the above compounds was determined in another two oils. Two oils where the second position was occupied by trans-sabinyl hydrate and cis-chrysanthenol acetate differed from the above eight oils. The third main component was β-pinene in seven oils and in the other three samples it was trans-sabinyl acetate (A-1999), 1,8-cineole (B-1999) and myrcene (B-2001).

All essential oils under study contained some unknown compounds. The mass spectra of three unknown (Table 1, unknown 1, 3, 4) constituents were similar to the corresponding spectra of unknowns produced by wormwood in Spanish Pyrenees [4]. The main m/z (115, 128, 142, 143, 156, 171, 186) of the above unknowns are characteristic of sesquiterpenoids containing an aromatic cycle joint by two carbon atoms with simple carbon cycles of six or seven atoms. Unknowns 1, 3, and 4 (MW 186) are compounds with 14 carbon and 18 hydrogen atoms. The same quantity of carbon atoms is in chamazulene, and the mass spectra of the unknown compound 5 was nearly the same as of chamazulene [14]. The above compound might have conjugated two aromatic cycles as of chamazulene with four methyl groups displayed at different carbon atoms. The unknown 5 could be biosynthesized from compounds with a cedrane carbon skeleton. Three cedrenes (cedrane skeleton) with a different location of double bonds were determined in the essential

Table 1. **Chemical composition of the essential oils of *Artemisia absinthium* L. from Vilnius city**

| Compound | RI | A | | | B | | | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1999 | 2000 | 2001 | 1999 | 2000 | 2001 | 2000 | 2000 | 2002 | 2001 |
| Tricyclene | 926 | 0.1 | tr. | | tr. | | | tr. | tr. | 0.2 | |
| α-Thujene | 931 | 0.9 | 0.2 | 0.2 | 0.2 | tr. | tr. | | tr. | 0.4 | tr. |
| α-Pinene | 939 | 0.3 | 4.3 | 4.4 | tr. | 2.2 | 0.1 | 2.0 | 0.2 | 0.6 | 4.2 |
| Sabinene | 976 | 4.0 | 3.8 | 1.0 | 2.2 | 3.1 | 1.5 | 1.2 | 1.6 | 2.5 | 3.5 |
| **β-Pinene** | 980 | 1.6 | **8.0** | **10.4** | **5.4** | **9.0** | 1.9 | **4.3** | **6.4** | **5.4** | **10.2** |
| Myrcene | 991 | 4.2 | 1.0 | 3.3 | 0.4 | 0.1 | **3.9** | tr. | tr. | 2.2 | 6.0 |
| β-Phelandrene | 1005 | 1.0 | tr. | | tr. | | 0.1 | tr. | | tr. | |
| α-Terpinene | 1018 | 0.3 | 0.4 | 0.2 | 0.2 | 0.1 | 0.1 | tr. | tr. | 0.1 | tr. |
| p-Cymene | 1026 | 0.4 | 0.2 | | 1.6 | | 0.3 | 0.2 | 0.2 | tr. | |
| 1,8-Cineole | 1033 | 3.2 | 1.4 | 1.0 | **7.1** | 1.2 | 0.6 | 2.2 | 0.9 | 3.7 | 5.0 |
| (Z)-β-Ocimene | 1040 | 0.1 | tr. | | 0.3 | | 0.3 | | | | |
| γ-Terpinene | 1062 | 1.0 | 0.8 | 0.5 | tr. | 0.4 | 0.3 | 0.5 | 0.4 | tr. | 0.1 |
| cis-Sabinene hydrate | 1068 | 0.3 | | | | | 0.1 | tr. | | tr. | |
| Terpinolene | 1088 | 0.3 | 0.2 | | tr. | | 0.1 | tr. | tr. | 0.1 | tr. |
| trans-Sabinene hydrate | 1097 | **11.0** | | | | tr. | 0.1 | tr. | tr. | tr. | |
| Linalool | 1098 | 4.0 | 2.0 | 2.7 | tr. | 1.1 | 4.7 | 0.1 | 0.8 | 1.5 | 2.8 |
| **cis-Thujone** | 1102 | **3.2** | **9.4** | **5.5** | **10.5** | **4.2** | **23.5** | **13.4** | **5.6** | **5.7** | |
| **trans-Thujone** | 1114 | **8.0** | **10.0** | **7.0** | **17.7** | **29.6** | **0.2** | **22.6** | **30.7** | **4.5** | tr. |
| endo-2-Norborneol acetate | 1125 | 1.4 | | | 4.0 | | | tr. | | | |
| iso-3-Thujanol | 1133 | 0.1 | 0.1 | | 0.3 | | 0.1 | | tr. | 0.1 | |
| trans-Sabinol | 1140 | 1.9 | 2.8 | 1.3 | 0.4 | 0.5 | 0.1 | 6.4 | 1.0 | 0.7 | 0.4 |
| trans-Verbenol | 1144 | 0.1 | tr. | tr. | 0.2 | | | | | | |
| Pinocarvone | 1162 | 0.2 | | tr. | 0.1 | | 0.2 | | | tr. | tr. |
| cis-Chrysanthenol | 1162 | 0.3 | | | 0.5 | tr. | tr. | tr. | 0.8 | 4.1 | 0.5 |
| Lavandulol | 1166 | 0.2 | 0.1 | tr. | 0.2 | tr. | 0.1 | 0.3 | 0.2 | | tr. |
| Terpinen-4-ol | 1177 | 1.3 | 1.8 | 1.0 | 1.6 | 1.3 | 0.8 | 1.1 | 0.8 | 0.9 | |
| α-Terpineol | 1189 | 0.6 | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.4 | 0.2 | 0.9 | 0.1 |
| cis-Piperitol | 1193 | 0.1 | | 0.2 | 0.2 | | | | | 0.2 | |
| trans-Carveol | 1217 | 0.1 | | | | | | | | 0.3 | |
| γ-Isogeraniol | 1222 | 0.2 | | | 0.1 | | | | | 0.2 | |
| Nerol | 1228 | 0.3 | 0.2 | tr. | | 0.1 | | 0.3 | 0.4 | 0.1 | tr. |
| n-Hexyl 2-methyl butyrate | 1234 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | | | 0.3 | 0.1 | |
| trans-Chrysanthenyl acetate | 1235 | | | | | | | 0.2 | | 0.9 | 0.7 |
| Neral | 1240 | 0.2 | | 0.5 | 0.2 | tr. | | | | tr. | |
| Geraniol | 1255 | 0.2 | 0.3 | tr. | 0.2 | | | 0.2 | 0.1 | | |
| cis-Chrysanthenyl acetate | 1262 | 0.2 | | tr. | 0.1 | | | | 0.5 | 0.2 | **11.1** |
| Perilla aldehyde | 1271 | | 0.3 | 0.1 | | | | tr. | 0.2 | | |
| **trans-Sabinyl acetate** | 1291 | **8.8** | **17.7** | **36.0** | **9.8** | **19.1** | **10.8** | **12.4** | **22.1** | **20.0** | **31.0** |
| Isoamyl benzyl ether | 1310 | 0.1 | 0.2 | 0.1 | tr. | | tr. | 0.1 | | 0.1 | |
| Hexyl tiglate | 1331 | 0.1 | 0.1 | | 0.3 | 0.1 | | 0.1 | | | 0.1 |
| Eugenol | 1356 | 0.1 | 0.2 | tr. | 0.3 | 0.1 | | tr. | tr. | 0.2 | tr. |
| Neryl acetate | 1365 | 0.3 | 0.4 | 0.1 | 0.2 | 0.3 | 0.1 | | | 0.4 | |
| α-Copaene | 1376 | 0.1 | | | 0.1 | | | | 0.1 | | |
| Geranyl acetate | 1383 | 0.1 | | | 0.1 | | | | | 0.1 | |
| β-Bourbonene | 1384 | 0.2 | tr. | 0.1 | 0.4 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | tr. |
| cis-Jasmone | 1394 | 0.2 | 0.2 | | 0.1 | tr. | | 0.1 | 0.1 | 0.2 | |
| n-Tetradecane | 1399 | 0.1 | | | 0.1 | tr. | | | | | |
| Italicene | 1401 | 0.1 | 0.1 | 0.1 | | | | 0.1 | 0.1 | 0.1 | tr. |
| cis-Caryophyllene | 1404 | 2.4 | 1.7 | 1.9 | 2.3 | 1.3 | 1.4 | 1.7 | 1.6 | 1.9 | 1.8 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,7-di-epi-β-Cedrene | 1410 | 0.1 | | 0.1 | 0.1 | 0.2 | | | 0.1 | | |
| β-Cedrene | 1418 | 0.2 | 0.1 | 0.1 | 0.1 | | | | | | |
| α-Humulene | 1454 | 0.5 | 0.4 | 0.3 | 0.5 | 0.2 | | 0.2 | 0.3 | 0.5 | 0.5 |
| β-Farnesene | 1458 | | 0.1 | | | 0.1 | 0.3 | 0.1 | | tr. | tr. |
| 1,7-di-epi-α-Cedrene ? | 1460 | 2.2 | | | 1.4 | | | | | | |
| Seychellene | 1460 | | | | | | | | | | |
| Acoradiene | 1464 | 1.4 | 0.4 | | tr. | 0.6 | 0.7 | 0.8 | | 0.1 | |
| γ-Muurolene | 1477 | | | | | 0.9 | | 0.5 | 0.9 | | 0.5 |
| γ-Curcumene | 1480 | | 0.5 | 0.7 | tr. | | | 1.1 | 0.8 | 2.0 | |
| ar-Curcumene- | 1481 | 0.1 | | 0.8 | | | | | | | tr. |
| β-Selinene | 1485 | | 0.6 | 0.3 | | 0.7 | 0.4 | | 0.5 | | |
| Neryl isobutanoate | 1491 | 0.1 | | 0.6 | tr. | | 0.8 | | | 0.9 | 0.4 |
| Viridiflorene | 1493 | tr. | | tr. | | | | | | 0.3 | |
| α-Bisabolene | 1504 | | | | | | 0.7 | | | | 0.1 |
| Lavandulyl isovalerate | 1510 | 0.4 | tr. | 1.3 | 0.5 | 0.1 | 2.2 | tr. | 0.1 | | 0.1 |
| Lavandulyl 2-methyl butanoate | 1512 | 2.0 | 0.1 | 0.9 | 0.2 | tr. | 1.5 | 0.4 | tr. | 1.3 | 1.4 |
| γ-Cadinene | 1513 | | 0.3 | | | | | | | 1.2 | |
| Geranyl isobutanoate | 1515 | | | 0.4 | | | 0.5 | 0.3 | | tr. | 1.2 |
| cis-Nerolidol | 1534 | 0.2 | 0.5 | 0.3 | | 0.9 | 2.1 | | 0.9 | | 2.3 |
| Geranyl n-butyrate | 1562 | 0.4 | 1.1 | 1.3 | 2.3 | 1.5 | 0.4 | 1.3 | 2.1 | 0.6 | |
| Germacrene B | 1556 | | | | | | 0.7 | 0.3 | tr. | | tr. |
| β-Calacorene | 1563 | 2.6 | 2.7 | 1.7 | 2.1 | 1.3 | | 0.3 | 1.0 | 3.2 | |
| trans-Nerolidol | 1564 | 0.2 | 0.3 | | | 0.2 | 0.1 | 0.2 | | 1.1 | 0.1 |
| Caryophyllene oxide | 1581 | 0.4 | 0.4 | | 0.3 | 0.1 | 0.1 | 0.2 | 0.1 | tr. | |
| Unknown 1 | 1605 | 0.2 | 2.8 | 2.0 | 0.7 | 1.8 | 2.2 | 2.0 | 2.1 | 0.9 | 2.4 |
| Unknown 2 | 1624 | 0.8 | 1.7 | 0.5 | | 0.3 | 0.5 | 0.3 | 0.4 | 0.3 | 0.1 |
| Unknown 3 | 1630 | 0.5 | 0.5 | 0.4 | 0.5 | 1.2 | 1.1 | 1.0 | 0.2 | 2.6 | 1.4 |
| Unknown 4 | 1635 | 0.6 | 0.2 | | 1.1 | 0.4 | 0.9 | 0.4 | 0.2 | 1.1 | 0.6 |
| Unknown 5 | 1640 | 0.2 | 0.3 | 0.2 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | | |
| cis-Methyl jasmonate | 1647 | tr. | | tr. | 0.4 | 0.2 | 0.1 | | 0.1 | | |
| Selin-11-en 4-α-ol | 1652 | 0.1 | 1.5 | 0.2 | | 0.5 | | 0.3 | 1.0 | 0.6 | 0.3 |
| α-epi-Bisabolol | 1686 | tr. | 1.6 | | | 0.4 | 0.3 | 1.9 | 1.1 | | |
| (Z)-α-Atlantone | 1713 | | 0.2 | | | 0.3 | | 0.2 | tr. | 0.2 | tr. |
| Chamazulene | 1725 | 0.9 | 1.4 | 0.5 | 1.3 | 0.6 | 0.7 | 0.8 | 0.7 | 0.4 | |
| (Z)-Nuciferol ? | 1758 | 1.7 | 1.5 | 0.3 | 2.0 | 1.1 | 1.2 | | 0.8 | 0.6 | tr. |
| Bisabolen-12-ol-β | 1760 | 0.1 | 0.3 | | 0.6 | 0.3 | 0.1 | 0.3 | 0.7 | | |
| (E)-α-Atlantone | 1773 | | 0.3 | | | 0.2 | 0.2 | 0.3 | | 1.1 | 1.1 |
| Nuciferol acetate | 1835 | 1.6 | 1.2 | 1.0 | 3.0 | 1.2 | 1.6 | 0.9 | 0.6 | 1.4 | 1.4 |
| Lanceol acetate | 1860 | 3.0 | 1.7 | 2.5 | 3.9 | 1.4 | 3.5 | tr. | 1.1 | 4.3 | 2.1 |
| Eicosane | 2000 | 0.3 | 0.2 | 0.1 | | 0.1 | 0.5 | tr. | tr. | 0.2 | 0.3 |
| Total | | 84.9 | 91.3 | 94.4 | 89.4 | 91.3 | 75.5 | 84.3 | 91.4 | 83.7 | 93.8 |
| Monoterpene hydrocarbons | | 14.2 | 18.9 | 20.0 | 10.3 | 14.9 | 8.6 | 8.2 | 8.8 | 11.5 | 24.0 |
| Oxygenated monoterpenes | | 49.6 | 48.6 | 60.2 | 57.7 | 59.5 | 47.1 | 61.8 | 66.7 | 47.8 | 54.7 |
| Sesquiterpene hydrocarbons | | 10.8 | 8.3 | 6.6 | 8.3 | 6.0 | 5.1 | 6.0 | 6.2 | 9.9 | 2.9 |
| Oxygenated sesquiterpenes | | 7.3 | 9.5 | 4.3 | 9.8 | 6.6 | 9.2 | 4.3 | 6.3 | 9.3 | 7.3 |
| Sabinene skeleton | | 38.2 | 44.0 | 51.0 | 41.1 | 56.5 | 36.4 | 56.0 | 61.0 | 33.9 | 34.9 |

RI – Retention index on unpolar column CP-Sil 8CB, tr.-traces(<0.05%)

Unknown 1 MW-186, (m/z): 157(100), 142(72), 143(70), 186(61), 143(70), 128(57), 115(46), 77(21), 91(21), 39(21)
Unknown 2 MW-220, (m/z): 135(100), 93(30), 41(29), 79(27), 67(18)
Unknown 3 MW-186, (m/z): 171(100), 186(75), 143(75), 129(60), 128(58), 140(43), 115(41)
Unknown 4 MW-186, (m/z): 171(100), 143(80), 186(76), 129(75), 128(74), 157(50), 91(41), 77(39)
Unknown 5 identical to chamazulene

oils under study (Table 1). Cedrenes might be converted to unknown derivates. Chamazulene is produced from compounds with a quaiene carbon skeleton. Nine out of ten oils contained 0.5–1.4% of chamazulene (Table 1).

Monoterpenoids comprised a large part (55.7–80.2%) of wormwood oils in the study. Oxygenated monoterpenes (47.1–66.7%) formed about a half of oil content. Compounds with a sabinane carbon skeleton (thujene, sabinene, cis- and trans-sabinene hydrate, cis- and trans-thujone, iso-3-thujanol, trans-sabinol, trans-sabinyl acetate) made up 33.9–61.0% of total oils. Plants from locality D biosynthesized 61.0% compounds of the above skeleton. Three oils (A-2001, B-2000 and C-2000) contained >50.0% of compounds with a sabinane carbon skeleton. The sum of 89 constituents listed in Table 1 comprised 75.5–94.4% of the essential oils. Eighty-four identified compounds made 70.5–91.3% of oils.

## CONCLUSIONS

The *Artemisia absinthium* L. plants collected from six habitats of Vilnius city biosynthesized essential oils of two chemotypes, thujone and trans-sabinyl acetate, according to the first major constituent. Several oils containing a close percentage of both major constituents might be attributed to the third mixed chemotype.

Received 23 September 2004
Accepted 05 October 2004

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**VILNIUJE AUGANÈIO PELYNO (*ARTEMISIA ABSINTHIUM* L.) ETERINIØ ALIEJØ CHEMINË SUDËTIS**

S a n t r a u k a

Pelyno (karèiojo kieèio) antþeminë dalis surinkta ðeðiose augavietëse Vilniuje 1999–2002 m. Eteriniai aliejai, iðgauti hidrodistiliacijos bûdu, buvo analizuojami dujø chromatografijos–masiø spektroskopijos metodu. Aðtuoniasdeðimt keturi identifikuoti junginiai sudarë 70,5–91,3% aliejø, vyraujant oksiduotø monoterpenø (47,1–66,7%) frakcijai. Pirmieji trys pagrindiniai komponentai galëtø bûti tujonas (cis+trans), trans-sabinil acetatas, trans-sabineno hidratas, cis-chrisantenil acetatas, β-pinenas, mircenas ir 1,8-cineolis. Didþiausias kiekis tujonø (cis+trans) (11,2–36,3%) buvo nustatytas septyniuose mëginiuose, o trans-sabinil acetato (20,0–36,0%) - trijuose aliejuose.

Pelyno eteriniai aliejai pagal pirmàjá vyraujantá komponentà priskirti tujono arba trans-sabinil acetato chemotipui, o turintieji panaðø ðiø junginiø kieká – miðriam tipui.