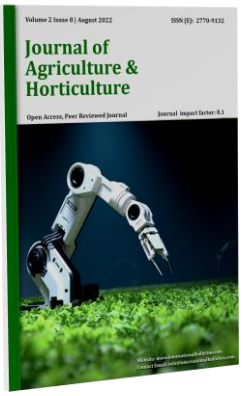


ESSENTIAL OILS OF SOME OPEN SEEDED PLANTS

Kh.K.Dzhumaev
Termiz State Pedagogical Institute, candidate of biological sciences, associate professor
Abdumurodova N.O.
Abduqodirova M.S.
Students of Termiz State Pedagogical Institute
https://doi.org/10.5281/zenodo.10090904

Abstract: Pinus brutia var. eldarica (Medw.) Silba, Juniperus seravschanica Kom., Juniperus virginiana L., Thuja occidentalis L., Cupressus sempervirens f. horizontalis (Mill.) Voss, essential oils were extracted from their green branches and leaves of Eldar pine using the Ginzberg method [1].

Key words: essential oil plants, essential oils, Ginzberg method.

Material and methods: As the material and object of the work, 5 representatives of the class of pines growing and cultivated in Surkhandarya region were selected: Pinus brutia var. eldarica (Medw.) Silba, Juniperus seravschanica Kom. [2-3]), Juniperus virginiana L., Thuja occidentalis L., Cupressus sempervirens f. horizontalis (Mill.) Voss, their green branches and leaves of Eldar pine Ginzberg essential oils were extracted using the method.

Pinus brutia var. eldarica (Medw.) Silba (homeland of Azerbaijan), Cupressus sempervirens f. horizontalis (Mill.) Voss (Mediterranean), Juniperus virginiana L. and Thuja occidentalis L. of North American origin are planted as ornamental plants in Surkhandarya region [4]. Juniperus seravschanica Kom. is found in the mountainous regions of Uzbekistan and forms thick forests in some places. Juniperus seravschanica Kom. has a unique aroma and is used as a spice in cooking various meat products. Because a large amount of essential oils are collected in its branches and domes [5]. All of the plants listed above are plants rich in essential oils. In the plant, the places where essential oils accumulate surrounded by thick cells are located in the lower part of the parenchyma cells of the cuticle, epidermis, hypodermis of leaves and domes in the schizogen type [6]. Such a deep location of essential oil collection sites requires long boiling or shearing and grinding to extract them [7].

Therefore, in order to determine the periods of maximum release of essential oils in plant organs, we used boiling schemes every 8, 12, 14 and 16 hours.

The amount of essential oils extracted from plant organs is presented in the table. As can be seen from the data in the table, the places where essential oils accumulate in the organs of these plants are endogenous organs, and in particular, they are of the schizogen type.

Almost 51-58% of the available essential oils are released when the green branches of J. seravschanica and J. virginiana and C. sempervirens are boiled for 8-9 hours. As the time of boiling the plant product increased, the amount of extracted essential oils also increased, and almost 2 times more essential oils were extracted from the plant organs boiled for 14 hours. Boiling longer than this period (in the case of J. seravschanica) did not significantly affect the separation of essential oils.

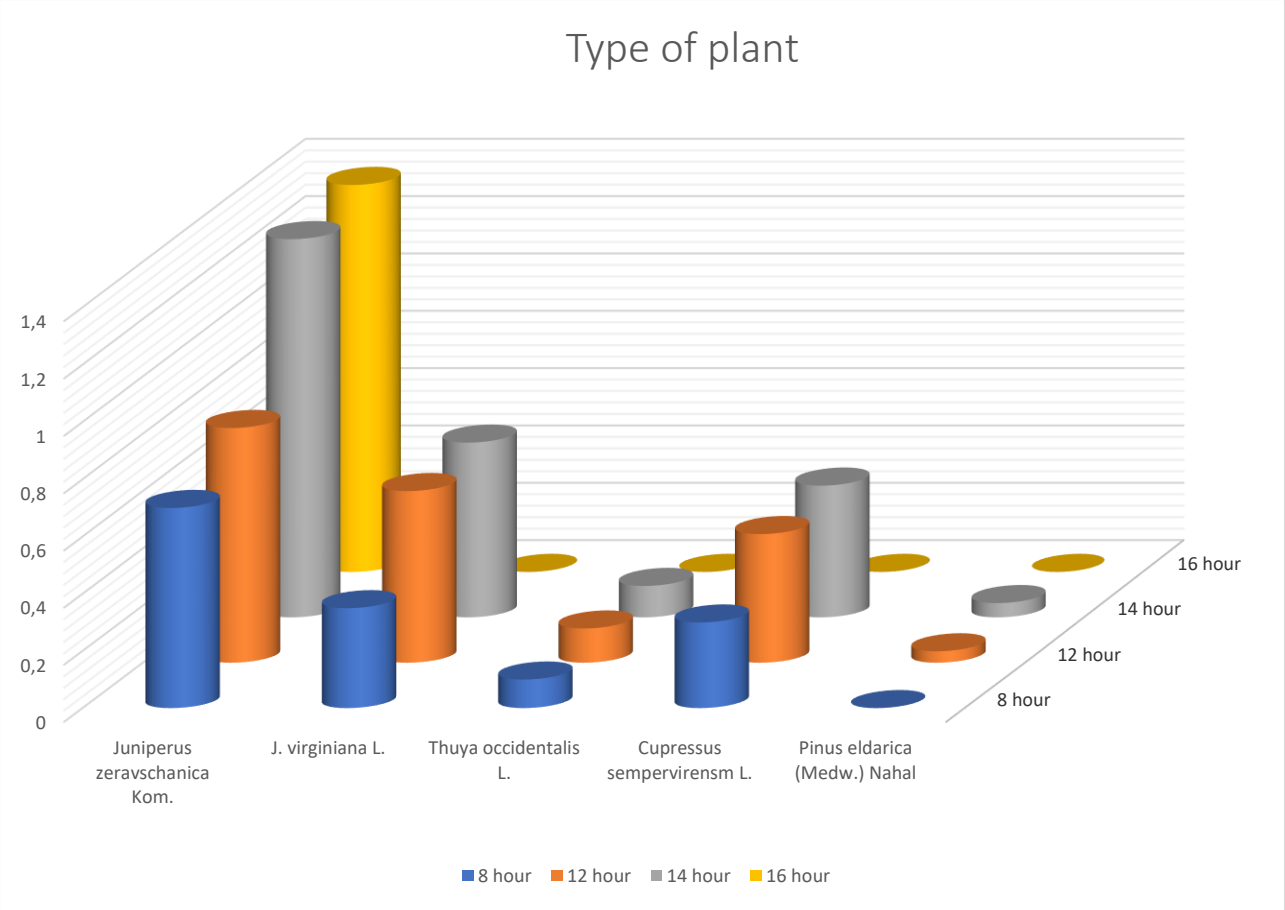
Thus, it is enough to boil the products for 14 hours to extract essential oils from the stems and leaves of the experimental plants.

Judging from the data in the table, among these plants, the plant with the richest essential oils is J. seravschanica. In its green branches, up to 1.35% of essential oils are collected by wet weight. As a result of the experiment, it was found that the branches of J. virginiana and C. sempervirens also secrete a significant amount of essential oils (up to 0.61-0.46%). The content of essential oils was found to be slightly lower (0.12 %) in western camellia twigs, and much lower (0.05 %) in Eldar pine leaves.

Table.

Amount of essential oils extracted from plant organs (in % of wet weight).

T/p	***Plant type***	***Organ***	***Boiling time, hours***			
			8	12	14	16
			Amount of essential oil, %			
1.	*Juniperus zeravschanica Kom.*	A green branch	0.7	0.82	1.35	1.32
2.	*J. virginiana L.*	A green branch	0.35	0.60	0.61	-
3.	*Cupressus sempervirens L.*	A green branch	0.30	0.45	0.46	-
4.	*Thuya occidentalis L.*	A green branch	0.10	0.12	0.12	-
5.	*Pinus eldarica (Medw.) Silba*	Leaf	Tracesof essential oil	0.04	0.05	-



The extracted essential oils are pale yellow in color and have an aromatic smell. Essential oils of the above types can be used for various purposes. In the future, it is aimed to study the amount of essential oils collected in plants of different sexes and their vegetative and generative organs, as well as the chemical composition and pharmacological properties of the extracted essential oils.

References:

1. Ginzberg, A.S. Uproshchyonnyy sposob opredeleniya kolichestva efirnogo masla v efironosax / A.S. Ginzberg // Khimiko-farmatsevticheskaya promyshlennost. - 1932. - No. 8-9. - S. 326-329.
2. "Juniperus seravschanica". Plants of the World Online. Accessed 5 December 2020.
3. Adams, R.P., Al-Farsi, A. & Schwarzbach, A.E. (2014). Confirmation of the southern-most population of Juniperus seravschanica in Oman by DNA sequencing of nrDNA and four cpDNA regions Phytologia 96: 218-224.
4. Dendrology: short course lecture for students I kursa spetsialnosti (napravleniya podgotovki) 35.03.01 "Lesnoe delo" / Sost.: G.N. Zaigralova // FGBOU PO "Saratovsky GAU". - Saratov, 2016. - 77 p.
5. Djumaev K. Dikorastushchie efirnomaslichnye rasteniya Surkhan-Sherabadskoy doliny. Autoref. dis. ...cand.biol.nauk.–Tashkent. 1974. -39 p.

6. Pisarev D.I., Netrebenko N.N., Sorokopudov V.N. Basic microdiagnostic elements of Mojjevelnika dlinnokhvoynogo (Juniperus oblonga Bieb). Vestnik KrasGAU. 2010. No. 1. S. 52-57.
7. Botanical-pharmacognostic dictionary: Sprav. Posobie/ K.F. Blinova, N.A. Borisova, G.B. Gortinsky and dr.; Pod ed. K.F. Blinovoy and G.P. Yakovleva - M.: Vyssh. shk., 1990. – 272 p.
8. Uralovich T. F. Conducting classes on fine arts based on information and communication technologies International Engineering Journal For Research & Development.-2021 //T. – T. 6. – C. 3-3.
9. Toshpo'Latov F. U. et al. Bolalarni o 'yin texnologiyalari asosida kasb-hunarga qiziqishlarini shakllantirishda rivojlantiruvchi o 'yinlar //Science and Education. – 2021. – T. 2. – №. 4. – C. 487-491.
10. Toshpulatov F. U., Turopova R. B. Games that develop children's interest in the profession based on game technology //Science and Education. – 2021. – T. 2. – №. 4. – C. 487-491.
11. Toshpulatov F. Use of geometric patterns and their types from eliminations of drawing and applied art in architectural facilities //Физико-технологического образование. – 2022. – T. 1. – №. 1.
12. Toshpulatov F. U., Norqochqorov R. E. O., Maxmudova X. N. Q. Xalq amaliy san'atining chizmachilik fani bilan bog'liqligi //Academic research in educational sciences. – 2021. – T. 2. – №. 2. – C. 138-142.
13. Tashimov N. E., Toshpulatov F. U. Activating Students in Building Intersection Line by Quadratic Transformations Method //www. auris-verlag. de.–2018.–2018. – 2018.
14. Тошпулатов Ф. У., Туропова Р. Б. Игры, которые развивают интерес детей к профессии на основе игровых технологий //Наука и образование. – 2021. – Т. 2. – С. 487-491.
15. Urolovich T. F. et al. CHIZMA GEOMETRIYA TA'LIMI JARAYONIDA TALABALARNING MUSTAQIL TA'LIM FAOLIYATINI RIVOJLANTIRISH //Евразийский журнал права, финансов и прикладных наук. – 2022. – Т. 2. – №. 2. – С. 279-283.
16. Urolovich T. F. et al. TASVIRIY SAN AT DARSLARIDA TASVIRNI TO G RI CHIZISHDA PERSPEKTIV POZITSION VA METRIK MASALALARDAN AMALDA TO GRI FOYDALANISH //Innovative Society: Problems, Analysis and Development Prospects (Spain). – 2022. – C. 41-44.
17. Toshpulatov F. U., Mominov B. K., Mamatkulov I. C. Determination of Sections of General Surfaces of the Second Order on Predetermined Circles //The American Journal of Interdisciplinary Innovations and Research. – 2020. – T. 2. – №. 11. – C. 21-26.
18. Toshpulatov F. U., Norkochkarov R. E. O., Mahmudova H. N. Q. THE RELATIONSHIP OF FOLK APPLIED ARTS WITH THE SCIENCE OF DRAWING //Academic research in educational sciences. – 2021. – T. 2. – №. 2.
19. Toshpulatov F. QIRQIM VA KESIM BAJARISHDA OQUVCHILARDA TIPIK XATOLARGA YOL QOYMASLIK KO 'NIKMALARINI RIVOJLANTIRISH //Физико-технологического образование. – 2022. – №. 4.
20. Toshpulatov F. U. et al. Issues of Developing the Culture of Measurement in Drawing Lessons (In the Case of General Secondary Schools) //Vital Annex: International Journal of Novel Research in Advanced Sciences. – 2022. – T. 1. – №. 5. – C. 111-119.
21. Toshpulatov F. OLIY TA'LIM MUASSASALARIDA CHIZMACHILIK FANINI O 'QITISHNING HOZIRGI KUNDAGI HOLATI //Физико-технологического образование. – 2022. – №. 4.

22. Toshpulatov F. U., Murodaliyevna T. F. DEVELOPMENT OF THE SKILLS OF STUDENTS TO AVOID TYPICAL ERRORS WHEN PERFORMING CUTTING AND CUTTING //Spectrum Journal of Innovation, Reforms and Development. – 2022. – T. 5. – С. 70-74.
23. Toshpulatov F. U., Qizi R. F. G., Qizi R. Z. G. On Organizing and Supervising the Independent Work of Drawing Geometry Guidelines and General Rules //Texas Journal of Multidisciplinary Studies. – 2022. – T. 14. – С. 83-86.
24. Toshpulatov F. U., Norqochkarov R. E. O., Mahmudova K. N. Q. The relationship of folk application art with the science of drawing //Academic research in educational sciences. – 2021. – T. 2.
25. Тошпулатов Ф. ИСПОЛЬЗОВАНИЕ ГЕОМЕТРИЧЕСКИХ УЗОРОВ И ИХ ВИДОВ ИЗ ИСКЛЮЧЕНИЯ РИСУНКА И ПРИКЛАДНОГО ИСКУССТВА В АРХИТЕКТУРНЫХ СООРУЖЕНИЯХ //Физико-технологического образование.-2022.-Ч. – Т. 1. – №. 1.
26. Urolovich T. F. et al. DEVELOPMENT OF INDEPENDENT LEARNING ACTIVITY OF STUDENTS IN THE PROCESS OF DRAWING GEOMETRY EDUCATION //Eurasian Journal of Law, Finance and Applied Sciences. – 2022. – T. 2. – №. 2. – С. 279-283.
27. Faxriddin U. T., qizi Maxmudova X. N. TALABALARGA CHIZMACHILIK FANINING QURILISH CHIZMACHILIGI BO ‘LIMINI O ‘RGATISHDAGI BA’ZI BIR TAVSIYALAR //Международная конференция академических наук. – 2022. – T. 1. – №. 15. – С. 18-23.
28. Toshpo’Latov F. U. et al. Bolalarni o ‘yin texnologiyalari asosida kasb-hunarga qiziqishlarini shakllantirishda rivojlantiruvchi o ‘yinlar //Science and Education. – 2021. – T. 2. – №. 4. – С. 487-491.
29.Baratovna T. R. Developing Dialogic Speech of Pre-School Children on the Basis of a Variative Approach //American Journal of Social and Humanitarian Research. – 2022. – T. 3. – №. 10. – С. 272-275.
30.Baratovna T. R., Abdurakhmanova S. LEGAL AND REGULATORY BASIS OF ORGANIZING ACTIVITY CENTERS IN PRESCHOOL EDUCATIONAL ORGANIZATIONS //E Global Congress. – 2023. – T. 2. – С. 65-68.
31.Ra’no T., Maftuna B. Variative Approach Based on of Children Dialogic Speech Development Methodology Improvement //European Journal of Higher Education and Academic Advancement. – 2023. – T. 1. – №. 1. – С. 99-104.
32.Турапова Р. Developing dialogic speech of pre-school children on the basis of a variative approach //Современные тенденции инновационного развития науки и образования в глобальном мире. – 2022. – Т. 1. – №. 4.