

та споживачів на певному ринку; прогнозувати попит на продукцію підприємства на зовнішніх ринках.

Доцільність розробки та впровадження такої освітньої програми засвідчує і сайт rabota.ua [1]. Незважаючи на воєнний стан в Україні, збільшилась кількість вакансій. Основними містами України, де потребують таких фахівців є Миколаїв, Дніпро, Львів, Київ, Вінниця.

Вважаємо, що кваліфікована підготовка таких фахівців дасть можливість підняти рейтинг конкурентоспроможності України на світовому ринку.

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CREATION OF SOIL PROTECTION PHYTOCENOSSES OF ESSENTIAL OIL CROPS IN THE SOUTHERN STEPPE ZONE OF UKRAINE

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Problem statement. Preserving soil fertility and recultivating technogenically of disturbed territories is a condition for the stable development of the agricultural sector of the Ukrainian economy. The priority task of the National Environmental Policy in accordance with the law of Ukraine "On the basic principles (strategy) of the state environmental policy of Ukraine for the period up to 2030" is the rehabilitation of territories affected by anthropogenic activities. Man-made disturbed territories are environmentally dangerous, since it is not allowed to grow crops for direct consumption on polluted soils, and the cultivation of pasture crops is limited. In the zone of the Southern steppe, in particular in the Mykolaiv region, land which was occupied under quarries, hydraulic dumps and storage facilities of industrial waste, transport communications of liquidated enterprises, etc. are subject to restoration. The current state of the soil cover of the zone is characterized as a crisis, since there are such negative phenomena as degradation, humus loss, water and wind erosion, etc. In the system of measures for the restoration and protection of disturbed soils, phytoremediation and reclamation can be important components, which provide for the development and implementation of complex works to restore the aesthetic value and productivity of anthropogenic changed landscapes [1, 2]. As a phytomeliorant, it is advisable to grow two – or perennial essential plants, in particular plants of the Lamiaceae Lindl family which can be cultivated on unproductive, stony soils, they protect the soil from wind and water erosion, inhibit

the germination of weeds, activate the soil microflora. Cultivation of essential oil crops provides an increase in biodiversity in agroecosystems, air purification from pathogenic bacteria by releasing essential oil with antiseptic properties, aesthetic beauty during the flowering phase, are valuable honeybees. In this regard, the study of biological features and formation of productivity of essential oil crops in anthropogenically transformed ecosystems is relevant. In particular, experimental data on the cultivation of *Hyssopus officinalis* on depleted and degraded soils in the Mykolaiv Region [3] show the prospects for conducting such studies.

Presentation of the main research material. Family *Lamiaceae* Lindl., or *Labiatae* Juss. it includes 250 genera and about 7.9 thousand species, of which a significant number of species are grown as essential oil plants, in particular, narrow-leaved lavender, peppermint, clary sage, common sage, rosemary, savory, lemon balm, nepeta, monarda, hyssop and others. In modern economic and ecological conditions, it is advisable to expand the area under essential plants, in particular, to grow them as niche crops in the Southern steppe zone of Ukraine.

English lavender *Lavandula angustifolia* Mill. is perennial evergreen semi-shrub containing 1-2.5% essential oil in inflorescences. The main components of lavender essential oil are linalool alcohol (10-20%) and its acetic Ester linalyl acetate (30-50%) [4]. This is a plant of the southern climate, frost –resistant, but when exposed to extremely low temperatures –25-30°C, damage to plant tissues is observed. During the growing season, warm weather is preferred for lavender, and during flowering is preferred hot weather. It is a light-loving plant, when shaded, its shoots stretch out strongly, the size of the flowers decreases, and the oil content in them decreases. Drought-resistant, but demanding of moisture from the beginning of the growing season to the beginning of flowering. It is unpretentious to soils, the best for it are carbonate chernozem-sandy loam and loamy soils with admixtures of crushed stone, pebbles and stones. The yield of inflorescences was 60.0–76.0 c/ha, the collection of essential oil was 127.4–142.3 kg/ha [5].

Peppermint, *Mentha x piperita* L. is a hybrid type of mint, not found in the wild, perennial herbaceous plant. Mint is grown for the production of valuable essential oil, which is found in all aboveground organs of the plant: such as leaves (from 2 up to 4%), inflorescences (4 up to 6%), stems (up to 0.3% by weight of dry matter). As raw materials use the aboveground part of plants in a dried state or dry leaves. Peppermint oil contains menthol (41-92%), Mentone (9-25%), pinene, limonene and other substances.

Peppermint is unpretentious to heat. In spring, regrowth begins at 3-5°C, the optimal temperature for its growth is 18-20°C. High temperatures in the summer months restrain branching, while yield and oil content decrease. Rhizomes can withstand frosts up to -13°C, and in the presence of snow cover up to -18 –30°C. Mint shoots can withstand frosts up to -8°C. Mint is very demanding on humidity and soil fertility. The most suitable for cultivation are fertile light soils. The yield of green mass is 98.7–223.0 c/ha, the collection of essential oil is 41.8 – 75.9 kg/ha [6].

Clary sage *Salvia sclarea* L. it is grown mainly as a two-year-old crop. Essential oil accumulates in inflorescences (0.11–0.3%) and other aboveground

organs of the plant. Sage fruits contain up to 31% fatty drying oil. Essential oil contains linalyl acetate (58-70%), linalool (10-15%) and other substances.

In the first year of vegetation, sage forms a rosette of leaves, and in the second one flower-bearing shoots appear. Sage is characterized by relatively high cold and frost resistance. The optimal germination temperature is 10-12°C, seedlings can withstand temperatures of -6 –8°C, and adult plants in the rosette formation phase are up to -28°C. The optimal temperature for growth and development is 23-30°C. Sage is whimsical to light, especially at the beginning of development. The light stage occurs when the daylight duration is at least 14-16 hours. Sage is a drought-resistant plant, but it is sensitive to moisture, especially during seed germination and in the spring of the second year of life, when leaves develop and inflorescences form. During the ripening period of seeds, sage can withstand drought. Low-demand for soils, it can be grown even on poor stony soils, but chernozems and carbonate loamy soils are preferred, while light sandy ones are less suitable. The yield of inflorescences is 152.5 kg/ha, the collection of essential oil is 56.8 kg/ha.

Transcaucasian Catnip (*Nepeta*), *Nepeta transcaucasica* Grossch. It contains up to 0.43% of essential oil in freshly harvested raw materials and up to 1.4% in absolutely dry raw materials [7]. As a spice, you can use the leaves and tops of the stems of the plant. *Nepeta* is unpretentious to soils, content with average fertility. Drought-resistant plant, easily tolerates dry periods, but the quality of greenery and flowering is higher with regular watering. The yield of green mass is 250.1 c/ha, the collection of essential oil is 91.0 kg/ha.

Lemon balm, *Melissa officinalis* L. is perennial herbaceous plant. Leaves and tops of shoots are used as medicinal raw materials. Young leaves and leaves of the first collection contain up to 0.29% essential oil, the second collection contain up to 0.13%, the third one contain only 0.1%. It is a light-loving plant, but can also grow in shading if necessary. Sensitive to cold, loamy and sandy loam soils are preferred. Drought-resistant, often affected by fungal diseases in waterlogged areas. The yield of green mass is 90.0 c/ha, the collection of essential oil is 31.7 kg/ha.

Conclusions. Analysis of biological features of essential oil plants of the *Lamiaceae* Lindl. family. It indicates the prospects of their cultivation in the southern steppe zone of Ukraine in anthropogenically altered territories.

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РЕФОРМУВАННЯ ЗАНЯТЬ ФІЗИЧНОГО ВИХОВАННЯ У ЗАКЛАДАХ ВИЩОЇ ОСВІТИ

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Анотація: У статті висвітлено аналіз інноваційних методів викладання фізичної культури у закладах вищої освіти. Більшість здобувачів вищої освіти не вбачає інтересу в навчальній дисципліні «фізична культура». Тому для викладачів є актуальною проблемою пошук нових методик і технологій проведення занять, мета яких зацікавити студентів. У роботі сформовано актуальність і роль нових методик і засобів проведення занять з фізичної культури, а також підкреслена важливість мотиваційного механізму. Наведені приклади особистісно-орієнтованих, інформаційно-комунікативних, здоров'язберігаючих технологій.

Ключові слова: фізична культура, інновації, спорт, здобувач вищої освіти, фізичне виховання, розвиток, реформування, інтерактивна система навчання.

Постановка проблеми. Фізична культура у закладах вищої освіти постає не лише суто навчальною дисципліною, а визначається як найважливіший компонент цілісного розвитку особистості. Функції фізичного виховання, такі як освітні та розвиваючі, проявляються у цілеспрямованому педагогічному процесі. Актуальність впровадження інноваційної та інтерактивної системи навчання здобувачів вищої освіти з фізичної культури і спорту зумовлена тим, що дана категорія молодого населення країни в останні роки все більше втрачає інтерес до фізичних спортивних занять і веде малорухливий спосіб життя. Крім цього, серед причин реформування зазначеної дисципліни є недоліки застарілої системи освіти, що не враховують інтереси та схильності особистості, переважають монологічні схеми викладання навчального матеріалу, які засновані на індуктивній логіці та ґрунтуються на викладенні готових знань.