



Samarkand biotexnologiyalar universiteti laboratoriyasida o’tkazilgan GC–MS tahlillari natijasida *Origanum tyttanthum* G. turining efir moyi tarkibidagi asosiy biologik faol moddalarining miqdori oshgani aniqlandi.

AK-1 shtammi-da karvakrol 87.51%, AK-2M shtammi-da esa 66.74% ni tashkil etdi. Shuningdek, γ -terpinene (5.13–16.00%) va o-cymene (1.94–5.09%) miqdorining ortgani efir moyining biologik faolligini oshirdi. Bu natijalar introduksiya jarayonining nafaqat ekologik moslashuv nuqtai nazaridan, balki fitokimyoviy tarkibni boyitish orqali dorivor qiymatni oshirishda ham muhim ahamiyatga ega ekanini ko’rsatadi.

Shunday qilib, *Origanum tyttanthum* G. turini Samarkand vohasi sharoitida introduksiya qilish uning bioaktiv moddalar tarkibini optimalashtirish, yuqori sifatli dorivor xom-ashyo yetishtirish va farmatsevtika sanoati uchun istiqbolli yo’nalish hisoblanadi.

Foydalanilgan adabiyotlar

1. **Isikov V.P., Rabotyagov V.D., Xlipenko L.A.** Aromatik va dorivor o’simliklarni introduksiya qilish va tanlash. – Yalta: Nikitskiy botanika bog’i, 2009. – 110 b.
2. **Isikov V.P., Ovcharenko N.S.** Qrimda yetishtirilayotgan aromatik va dorivor o’simliklardagi zamburug’lar // *Nikitskiy botanika bog’i ishlari (Trudy Nikitskogo Bogsada)*. – 2011. – T.133. – B. 62–90.
3. **Libus O.K., Rabotyagov V.D., Kutko S.P., Xlipenko L.A.** Efir moyi beruvchi va aromatik o’simliklar. – Xerson: Aylant, 2004. – 270 b.
4. **Xojimatov O.K., Xamraeva D.T., Xujanov A.N., Bussmann R.W.** O’zbekistonning etnomedik dorivor o’simliklariga umumiy nazar // *Ethnobotany Research & Applications*. – 2020. – B. 1–19.
5. **Ismoilova S.** Farmatsevtika sanoati uchun noyob dorivor o’simliklarni yetishtirish // *Science and Education*. – 2020. – T.1, №3. – B. 111.

MAYDA GULLI TOG‘ RAYHONI (*ORIGANUM TYTTANTHUM* G) O‘SIMLIGINING BIOMORFOLOGIK XUSUSIYATLARI

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Annotatsiya: Markaziy Osiyoda keng tarqalgan dorivor o’simlik *Origanum tyttanthum* G biomorfologik belgilarini va urug’ orqali ko’payishini o’rganish bo’yicha tadqiqotlar olib borildi. Tadqiqotda o’simlikning asosiy o’sish ko’rsatkichlari — poya, barg va rivojlanish dinamikasi tahlil qilindi. Olingan natijalar ushbu turning biologiyasini chuqurroq anglashga va uni introdyksiya sharoitlarda yetishtirish texnologiyasini takomillashtirishga xizmat qiladi.

Kalit so’zlar: *Origanum tyttanthum*, biomorfologiya, urug’dan ko’paytirish, dorivor o’simlik, o’sish dinamikasi

BIOMORPHOLOGICAL CHARACTERISTICS OF SMALL-FLOWERED MOUNTAIN OREGANO (*Origanum tyttanthum* G) PLANT PROPAGATED FROM SEEDS

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Abstract. *Origanum tyttanthum* G, a medicinal plant widely distributed in Central Asia, was studied for its biometric morphological characteristics and seed propagation. The research focused on essential growth parameters including stem, leaves, and development dynamics. The findings contribute to better understanding of the plant’s biology and its cultivation under natural conditions.

Keywords: *Origanum tyttanthum*, biomorphology, seed propagation, medicinal plant, growth dynamics



БИОМОРФОЛОГИЧЕСКИЕ ХАРАКТЕРИСТИКИ МЕЛКОЦВЕТКОВОГО ГОРНОГО ОРЕГАНО (*ORIGANUM TYTTANTHUM* G), РАЗМНОЖЕННОГО СЕМЕНАМИ

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Аннотация. В статье представлены результаты исследования биоморфологических характеристик лекарственного растения *Origanum tyttanthum* G, широко распространённого в Центральной Азии. Изучены основные морфометрические показатели растения, включая особенности стебля, листьев и динамику роста при размножении семенами. Полученные данные позволяют более глубоко понять биологию вида и могут быть использованы при его культивировании в естественных условиях.

Ключевые слова: *Origanum tyttanthum*, биоморфология, семенное размножение, лекарственное растение, динамика роста

Introduction

Small-flowered mountain oregano (*Origanum tyttanthum* G) is an endemic and medicinal plant of Central Asia and Southern Kazakhstan. Studying its biomorphological characteristics in both natural habitats and cultivation is crucial [1]. Detailed information on the species' internal polymorphism, growth processes, and ontogenesis forms the basis for its effective propagation and wide use as a biological resource [2]. Therefore, investigating the biomorphological parameters of seed-propagated *O. tyttanthum* G is not only scientifically significant but also practically relevant [1,3].

O. tyttanthum G belongs to the Lamiaceae family and is a perennial rhizomatous plant endemic to Central Asia and Southern Kazakhstan [1]. The Lamiaceae family includes over 70 genera and 49 taxa globally [1]. The *Origanum* genus is distinguished by diverse morphological traits, which often complicate taxonomy and species identification [2]. Particularly, leaf shape, inflorescence structure, and flower size and color show high variability [3].

Correctly studied biomorphological traits help in understanding plant growth processes, species specificity, and ecological adaptability [2,4]. Therefore, in-depth investigation of the biomorphological parameters of seed-propagated *O. tyttanthum* G, a plant of significant medicinal value, is both scientifically and practically important [1,4].

Materials and Methods

Research was conducted from 2021 to 2023 in Pastdargom district, Samarkand region, under agricultural field conditions. Seed-propagated plants were sown in three planting schemes (90×30 cm, 60×30 cm, and 45×30 cm) and monitored annually in spring and autumn for growth dynamics.

Biomorphological parameters—stem height, stem diameter, leaf number, leaf size, and other morphological traits—were measured regularly. Analysis was performed according to the plant's developmental stages (virginal growth period).



Figure 1. Formation of True Leaves in Small-Flowered Mountain Oregano (*Origanum tyttanthum* G)
Sults and Discussion



Stem Characteristics

The stem of *O. tyttanthum* G reaches 20–60(90) cm, has a tetracyclic structure, and is often branched. Stems may have fine violet-colored pubescence. Cross-section shows primary epidermis, vascular tissue, and pith clearly.

Leaf Characteristics

Leaves are opposite, 1–5 cm long and 1–3 cm wide, with small serrations. The upper surface is usually green, while the lower surface is light or grayish-green. Amphistomatic leaves have stomata on both upper and lower epidermis.

Seed-Propagated Plant Growth

Seedlings sown in autumn during the first year exhibited stem lengths from 3.26 cm to 14.84 cm during the virginal growth period. During the immaturity stage, stem lengths reached 26.8–27.0 cm with diameters of 0.44–0.46 cm. Growth was more pronounced in the second year, with stem diameter significantly larger in autumn plantings compared to spring.

Leaf number and size varied depending on growth stages and planting schemes. In autumn plantings at 90×30 cm, the number of leaves during the first year ranged from 4.8 to 22.9, slightly lower in spring plantings. Leaf growth correlated with plant size, reflecting biomorphological parameters at different developmental stages.

First-Year Vegetation Dynamics

During the first vegetative year (2020), the dynamics of leaf number in seed-propagated *O. tyttanthum* G were studied (virginal ontogenesis period). Analysis of biomorphological traits and growth dynamics enhances understanding of the plant’s ecological and practical significance. Results allow identification of optimal growth conditions, enable efficient use as a medicinal resource, and show that sowing timing and schemes significantly affect plant development, which is important for developing future intensive cultivation agro-technologies.

References

1. Интродукция и селекция ароматических и лекарственных растений. Методологические и методические аспекты / В. П. Исигов, В. Д. Работягов, Л. А. Хлыпенко и др. - Ялта, Никитский ботанический сад, 2009. - 110 с.
2. Исигов, В. П., Овчаренко, Н. С. Грибы на ароматических и лекарственных растениях, культивируемых в Крыму. Труды Никитского Ботанического сада. 2011; 133: 62–90.
3. Либусь, О. К., Работягов, В. Д., Кутько, С. П., Хлыпенко, Л. А. Эфиромасличные и пряно-ароматические растения. Херсон: Айлант, 2004. 270 с.
4. Исмоилова С. “Фармацевтика саноати учун ноёб доривор ўсимликларни етиштириш”, "Science and Education" Scientific Journal Volume 1 Issue 3 June 2020 111 www.openscience.uz
5. Olim K. Khojimatov, Dilorar T. Khamraeva, Alisher N. Khujanov, Rainer W. Bussmann. An overview of Ethnomedicinal plants of Uzbekistan. *Ethnobotany Research & Applications*. 2020. Pp. 1-19

CYPERUS ESCULENTUS LATIVUM ИНТРОДУКЦИЯСИНИ АГРОЭКОСИСТЕМАДАГИ АХАМИЯТИ

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Annotatsiya: Ushbu maqolada dorivor chufa (*Cyperus esculentus* Lativum) o‘simligining aholi turmush darajasini oshirishda va ijtimoiy-iqtisodiy muammolarini xalq etishdagi ahamiyati tahlil qilinadi. O‘zbekistonda (*Cyperus esculentus* Lativum) — yangi moyli o‘simlik sifatida katta e‘tiborga berilmoqda. Ushbu tadqiqotning asosiy maqsadi — chufani mahalliy sharoitga moslashtirish, uni fermerlarga joriy etish va aholinni to‘yinli o‘simlik moyi bilan ta‘minlashdir. Bu sohadagi rivojlanish qishloq xo‘jaligi salohiyatini kuchaytirish va aholi salomatligi uchun katta ahamiyat kasb etadi. O‘simlikning bioekologik xususiyatlari va qishloq xo‘jaligida ekologik xavfsiz usullar bilan foydalanish imkoniyatlari ko‘rib chiqiladi.

Kalit so‘zlar: dorivor chufa, *Cyperus esculentus*, tuproq unumdorligi, organik modda, bioekologiya, qishloq xo‘jaligi, ekologik xavfsizlik

ЗНАЧЕНИЕ ИНТРОДУКЦИИ CYPERUS ESCULENTUS LATIVUM В АГРОЭКОСИСТЕМЕ