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INTRODUCTION SPICE-AROMATIC SPECIES *VERBENA TRIPHILLA* L'HER. INTO COLLECTIONS OF THE BOTANICAL GARDEN (INSTITUTE) OF ASM.

Verbena triphylla L'Her is the species that possess unique chemical composition curative, flavoring, decorative, being widely used in sundries domain. Practical diversity was our landmark studies of introduction in the climatic conditions of our country. Since the volume of the original material that we had was small, I began research for defining methods of reproduction of the species. Within three years were identified cheap and most effective methods being chosen as asexual multiplication — potting-up. The method allows for a considerable amount of rooted plants, as well raw materials resulting from mature plants

Key words: verbena, spice, method, multiplication, rooting, cuttings, substrate

Verbena triphylla L'Hér. is a perspective perennial species with spice, aromatic, curative, proprieties and decorative appearance. The main chemical components of lemon verbena oil are borneol, geraniol, linalool, nerol, citral, dipentene, limonene and myrcene (1). The therapeutic properties of lemon verbena oil are anti-oxidant (2), anti-Candida (3), anti-septic, anti-spasmodic, aphrodisiac, digestive, emollient, febrifuge, hepatic, insecticide, sedative, stomachic and tonic.

Verminoside and verbascoside are natural compounds present in plants used in traditional medicine. They exhibit several biological activities including anti-inflammatory, anti-bacterial and anti-tumor properties (4).

Material and methods

Its introduction in the climate conditions of Moldova is related especially by the choice a method of multiplication. The experiments regarding propagation methods were carried out during 2013–2015 period. During the process of introduction there have been applied several methods of vegetative multiplication in order to identify the most efficient and fast one.

Propagation by cuttings is the most common method of plant multiplication and is based on attributes that have some species to reconstruct new plant by organs or parts of organs, when detached from the mother plant and are placed in the environment conditions.

Different kinds of cuttings were sampled for rooting. After the nature of tops, shoot and stem tops were used, and by tissue consistency were collected — herbaceous cuttings, taken from soft green stems and lignified ones. The period of collecting the cuttings a varied — during summer-autumn and early spring. The method was supplemented with rhyzogene substances (hormones) treatments to stimulate rooting. River sand, and mixture forest soil and Biohumus served as a substrate for rooting. Purification of the collected material and of the tool used in the cuttings process was made using solution — 1% — solution Potassium permanganate.

The cutting sampled in spring were planted in mini-greenhouses covered with special material «Agril» and those sampled in summer-autumn — in containers. Sampling of cuttings was performed with horticultural scissors and shaping for rooting — with a sharp scalpel. The lots of apical after tissue consistency were erbaceous and semilignifed, those from branches — semilignifed and strains — lignified.

In winter the plants of *Verbena triphylla* L'Her lose foliage and cuttings sampled early spring are without leaves. Before collecting cuttings mother- plants were fertilized and well irrigated. The cuttings collected în the summer-autumn period were shaped by removing two pairs of basal leaves and the other being halved. The cuts should be straight, without chipping. Here and there are made small incisions superficial tissue for stimulating the roots. The cuttings intended for rooting group were 8–10cm long and were half incorporated into the substrate. Before incorporation, the cuttings were cut off below the basal node, one part being processed with rhyzogene stimulator and the other remaining raw. Green seedlings were incorporated vertically and the smilignified and lignified ones — at an angle of 15 degrees. After incorporation, the substrate around seedlings was

irrigated and well compacted, this enhanced rooting. In both cases the light was intense but filtered.

Results and discussion

Factors that intervene in the production capacity of roots were identified as a result of the research. One of the important factors was the age mother plant. When mother plants were younger the propagation capacity is greater. The mother plant nutrition important was also important; root cuttings formed much faster and were qualitative. Light had an active role in the success of cuttings but this role is difficult to quantify, long days favored for rooting. One of the key factors that influenced directly rooting was constant humidity; both the substrate and the air influenced rooted cuttings.

Throughout cuttings was carefully controlled evaporation and water absorption from the ground. If the substrate (sand or mixture) is dry, cuttings will wither, if it is too wet, they will rot.

Over 12 to 15 days, buds appeared on the small stem of the cuttings, which began to develop intensively. This is the stage when the cuttings have already formed root. It was time to perform transplantation in larger containers and permanent place of growth for further development. The operation was carried out with great care, because newly formed roots are very fragile. For transplanted cuttings were created semidarkness conditions. The rooting rate of green apical cuttings treated with rooting stimulator was of 69% while the rooting rate 67% of the untreated ones was of 67% being insignificant, given the cost of preparation.

Apical cuttings green leaves often touching the substrate causing rot infection and their low rate of rooting. Semi lignified apical cuttings had the highest rate of rooting. Those treated with rooting stimulator — 89%, and the unprocessed ones –79% (tab.)

1. Rate of rooting different types of cuttings and rooting substrate

Types of cuttings	The rate of rooting, %			
	Sand substrate		Substrate mixture	
	Processed by rooting stimulate	Raw	Processed by rooting stimulate	Raw
Apical green	69	67	68	66
Apical semilignified	89	79	88	82
Lignified of the branches	73	70	74	71
Lignified of the de strains	75	74	75	75

Lignified cuttings derived from branches and strain had the same average rate of rooting: 70–75% rooting. I also noticed that rooting substrate isn't the most important criterion in the rooting process, sine the results were similar (66% rooting by stimulating both the substrate and on sand, and 65% unprocessed both substrates)

Mature plants of *Verbena triphylla* L'Her during the cold period are kept in the greenhouse at a temperature of 10–120C.

Apical cuttings taken from them are the early spring, without foliage, but good rooting. The summer — autumn apical cuttings, have 4–5 pairs of leaves, are green but semilignified. Their rooting rate is also pretty good 89% in early spring cuttings and 85% in summer — autumn. Lignified cuttings, collected so early as spring and summer — autumn had lower rates of 78–81% rooting. Rooting is influenced largely by stimulating rhyzogene processing.

Conclusions

Multiplying this precious species spicy, aromatic and medicinal should be performed using apical cuttings semilignifid. Applying rooting stimulators allows rapid rooting without massive loss of material. Collecting material is more rational multiplication during early spring. Rooting substrate that is not directly influence on this process.

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ИНТРОДУКЦИЯ ПРЯНО-АРОМАТИЧЕСКОГО ВИДА *VERBENA TRIPHILLA* L'HER. В КОЛЛЕКЦИИ БОТАНИЧЕСКОГО САДА(ИНСТИТУТА) АНМ

Verbena triphylla L. 'Her это вид, который имеет уникальный химический состав, лекарственные, ароматические, декоративные свойства используемые в различных направлениях. Разнообразное практическое использование этой культуры способствовало начать исследования по интродукции в климатических условиях нашей страны. Поскольку объем исходного материала был минимальным, были начаты исследования для определения методов воспроизводства вида. В течение трех лет были определенны самые простые и дешевые методы вегетативного размножения — черенкование. Метод позволяет получить значительное количество укорененных растений, используя исходный материал с зрелых растений

Ключевые слова: вербена, пряность, метод, размножение, укоренение, черенки, субстрат

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Verbena triphylla L'Her — це вид, який має унікальний хімічний склад, лікарські, ароматичні, декоративні властивості, які використовуються в різних напрямках. Різноманітне практичне використання цієї культури сприяло почати дослідження з інтродукції в кліматичних умовах нашої країни. Оскільки обсяг вихідного матеріалу був мінімальним, були розпочаті дослідження для визначення методів відтворення виду. Протягом трьох років були визначені найпростіші і дешеві методи вегетативного розмноження - живцювання. Метод дозволяє отримати значну кількість вкорінених рослин, використовуючи вихідний матеріал з зрілих рослин

Ключові слова: вербена, пряноші, метод, розмноження, укорінення, живці, субстрат