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Study of samples collec-tion of Lophanthus anise at selection in conditions of Zakarpatye

The purpose. To determine response of samples collection of Lophanthus anise to growing at stressful conditions and creation of perspective competitive grades.

Methods. The basic method for selection of Lophanthus anise is the method of polydistribut-lng frame with the subsequent individual and mass selections.

Results. Problems of perspective grow-ing and use of Lophanthus anise in conditions of lowland of Zakarpatye are considered. Outcomes of study of singularities of growth and development of different samples of Lophanthus anise, its response to negative environmental factors, and also forma-tion of productivity and exit of essential oils under the influence of unfavorable weather environment are reduced.

Conclusions. One of main ways of selection of Lophanthus anise is creation of ecologically-plastic to conditions of growing in different regions Immune grades with high productivity, fragrance and appre-ciable exit of essential oils.

Key words: Lophanthus, grade, selection, essential oils, productivity, quality.

Transcarpathia is an amazing natural-climatic zone (it is called the second Switzerland) and has a wonderful geographic location (the area borders on Slovakia, Hungary, Romania). It belongs to the creative zone, here is well-developed green tourism, many health-improving institutions; the processing industry, especially the canning and manufacturing of baby food with various aromatic additives, is becoming widespread. However, the Transcarpathian region is low-lying (0.16 hectares of agricultural land per one resident). Therefore, the important task of the present is the rational use of these lands. Low-frequency aromatic oil and spice-aromatic plants, which include lopant gunnous, - multifunctional plants: these are raw materials for canning, food, confectionery, vodka, paint and varnish, perfumery and pharmaceutical industries. Particularly important for Transcarpathia these species of plants is that they can grow on poor stony, reclaimed soils, unsuitable for growing cereals, fodder, vegetables and other crops. Nowadays, in the new market conditions, the priority task for the agricultural producer is to satisfy the consumer by high-quality, competitive and diverse products, which can be achieved through the cultivation of new promising spice-aromatic and herbaceous plants [6, 7]. Lofanthus anisatus Benth. Is a herbaceous perennial Lamiaceae family. The height of the plants depends on the conditions of cultivation and the type of soil and reaches 80 - 195 cm. The root is mushy. A large number of 4-fold shoots are formed on the bush. Leaves are petiolate, rarely cut, length - 7.5 - 10 cm, width - 4.5 - 7 cm. Flowers - blue, blue-violet and white, collected in spiked inflorescences length of 20 cm. In one place grows to 10 years, not reducing yields and product quality. Spring plant growth begins at the end of February - in early March, massive flowering lasts from June to mid-September [4]. Rhubarb and leaves of lopant gunnous contain vitamins, macro- and trace elements, sugars, organic acids, as well as about 1.5% of essential oils. The presence of a large number of biologically active substances contributes to the widespread use of lofant in

various sectors of the national economy. He is actively used in the official medicine of western countries, as well as North American Indians, Chinese, Mongols and Tibetans. Lofant gunnous - a powerful biostimulator; Due to its influence on pathogenic microorganisms, it occupies a leading place along with myrtle, displays radionuclides, increases potency and slows down the aging of the body, especially useful for the elderly, a wonderful honey (Fig. 1). In many kitchens of the world, lofant is an irreplaceable spice. Fresh and dried shoots are used in various sweet bacon, added to salads and other dishes, especially from river fish, meat, flavoring teas, compotes, jelly, canned fruit and vegetables, and also vodka [1 - 3, 9, 10] Nowadays, when environment ecology has deteriorated considerably, it is important to provide the agricultural manufacturer of plant raw materials with new and promising species and varieties of spicy aromatic and essential oils, which are as high as possible and highly plastic-friendly to environmental factors. To accomplish this task, particular attention should be paid to the study of collectible forms of different geographical origin for the identification of samples that could be the source material for the creation of new promising varieties adapted to different soil-climatic conditions and growing zones. Selection has a special role. Unfortunately, nowadays, in order to create and introduce a new type of production, it takes a long time (for 20-24 years old). Therefore, our work is aimed at reducing the selection process, increasing the range of pine-aromatic and oil-bearing plants, and this can be achieved if there are new methods of breeding and seed production have been developed and effective source forms have been applied for inclusion in the breeding process. During the creation of competitive varieties of lefant gunnous with a set of basic economic values, it is necessary to change the methods of breeding process in order to increase the lower limit of productivity for changing environmental factors. The effectiveness of heterozygous breeding lofant is determined by the presence of various source forms, valuable for a range of economic and biological characteristics. Previously, local varieties played a significant role in creating the source material, since they were most adapted to the extreme conditions of cultivation. However, at the present stage, they somewhat lost their position in breeding because the requirements for varieties have increased significantly. In order to create the original genetic diversity in the selection process, it is expedient to include varieties and forms of different geographical origin.

The above has created the prerequisites for research on spinach aromatic and herbaceous plants, which may soon take a worthy place in the production of products for various sectors of the national economy. The purpose of the research is to establish the response of variety samples to stress conditions of cultivation, to study the peculiarities of the formation of productivity and the yield of essential oils in varieties and to create promising competitive varieties. Research methodology. Scientific researches were carried out on the fields of the Transcarpathian State Agricultural Experimental Station (2000-2014) on soddy podzolized medium-sandy soils. Its arable layer during the years of research was characterized by a low content of humus - 1,9-2,1%, easilyhydrogenated nitrogen - 9,6 - 10,4 mg, mobile phosphorus - 6,9 - 7,2 and exchangeable potassium - 12,3 - 12.9 mg per 100 g of soil, pH of salt - 5.5 - 5.6. The main method of selection for lopant gunnous is a polycrose method followed by individual and mass selection of plants. Selection work was carried out in stages. In the nursery of the source material, the evaluation of the collection varieties for adaptability to the extreme conditions of cultivation, the duration of the vegetative period of the plants, the productivity and the yield of the essential oil were studied and evaluated. Selected elite plants, which prevailed analogues in the above parameters. Evaluated their offspring, conducted a description of plants and chemical analysis of biologically active substances according to the classifier and methodical instructions [5, 8]. The content of essential oils was determined by the method of hydrodistilation. Research results. To perform the task of creating new varieties of hoof lofant with high adaptability to extreme conditions of cultivation, as well as with increased indicators for economic and biological characteristics, selected varieties and forms of their own selection

and samples, introduced from various ecological and geographical zones. Components for breeding were varieties with short duration of the growing season, high yield and quality of ground mass and significant content of essential oils. In a gathering nursery 5 samples of lofant gunas of various origins were studied. According to the methodology, collecting material was evaluated for morpho-biological, economically valuable features and for resistance against unfavorable conditions of plant cultivation and against harmful organisms. It is established that the formation of quantitative characteristics does not depend on weather conditions. The yield and yield of the essential oil of this crop to a large extent depends on the varietal characteristics and weather conditions. During the research years were favorable for the growth and development of plants lopant gunnous when formed a powerful ground mass, and less favorable, which adversely affected the formation of generative and autonomic organs. This made it possible to analyze in detail the varieties of lobsters of lantern. During the years of research, the conditions (insufficient rainfall and high daytime temperatures) had a negative impact on the length of the vegetation period of the plants (the vegetation was significantly prolonged) and on the formation of the earth's mass. In good years two mowing of plants was carried out, and in one unfavorable one. However, such difficult conditions of cultivation favored the selection of the most adapted specimens. The vegetative period during the years of research on plants of lofant lasted 133 - 135 days. He was the shortest to the Beginning (133 days), the longest - in samples of CRBS, LAM-1 and LAM-2 and lasted 135 days. Lopant gonus was cut during the phase of mass flowering (July 18 - 25) (Fig. 2). On average, during the years of growing the lopant gum in the collection nursery the plant height reached 76.2 - 89.5 cm, the diameter of the bush was 80.6 - 92.74 cm (NIR05 - 6.4 and 5.2 cm), however these indicators differed considerably over the years. Plants of the 1st year of cultivation form small shrubs with one stalk, plants of the 2nd year formed a significant number of stems, and in the 3rd year of plant cultivation, they exhibit their biological potential: a large number of stems are formed, the leafiness increases, a large number of branches 1- and 2nd order. During the years of research, on average, a large number of stems (17-19 pieces) were formed in the bush, and a large number of branches of the 1st order (9-14 pieces) was formed, which ended with spiked inflorescences in the length of 8.4 - 9.9 cm and diameter 1,2 - 1,3 cm. The length of the branches of the 1st order was 34 - 44,1 cm. According to the results of the observations and biometric analysis of the lofant gunnous plants, in the collector nursery, the localized form - LAM - was adapted to the extreme conditions. -1 and grade Beginning. In unfavorable weather conditions, which consisted for a long period, these samples formed a sufficiently powerful ground mass, formed a significant number of stems, branches of the 1st order and inflorescences, which, in turn, contributed to the formation of high yields of plants.

Vegetative mass production is significantly influenced by weather factors. Under dry conditions, the plants form coarse stalks and their mass increases in comparison with the leaves of leaves and inflorescences. On average, during the years of growing the lohantum of the gunnous (collectible breeder), the weight of the plant varied from 217.9 (LAM-2) to 324 g (varietal Beginning). The yield of leaves and inflorescences was 51.7 - 57.8%. The mass of central inflorescence - 7.4 - 8.7 g. Over the years, these indicators vary considerably. During the years of research in the collection nursery, the highest productivity was found in the LAM-1 sample (weight: inflorescence - 8 g, plants - 317.9 g, yield of seed from a plant - 25.5 and yield of land mass - 12.7 t / ha) and variety Start (weight: inflorescence - 8.7 g, plants - 324 g, yield of seed from a plant - 27.2 and yield of land mass - 12.9 t / ha). Since lemon balaclava is an essential oil and spice-aromatic plant, the essential ingredient in the study of various plant samples is the content of essential oils and other biologically active substances. The accumulation of vitamin C from plants was at the standard level of 14.2 - 14.8 mg /% (standard varietal Beginning - 14.5 mg /%), except for the sample LAM-2 - 18.9 mg /%, but for others indicators this figure is slightly inferior. The highest yield of essential oil was in the standard-grade

Beginning and was on a.s.r. - 1.27%. Samples of the local population LAM-2 and LAM-1, whose output was 0.92 and 0.88% on a.s.r., were close to the values of the indicators. and in LA (Moldova) - 0.87%. The smallest he was in the sample CRBS - 0.73% on a.s.r. The sum of sugars - 0,20 (LAM-2,) - 0,38% (LAM-1, Beginning). One of the important directions for solving the problem of increasing the productivity of agricultural crops and stabilizing it, in particular, lopant gunnous, is the elimination of significant losses from damage to plants by diseases and pests. According to the results of the conducted researches over a long period of time, it has been established that ether-oil, spice-aromatic and medicinal plants, in particular, lopant gannus, are not affected by diseases and pests for cultivation in the lowland zone of Transcarpathia. Since these crops are not typical of the Carpathian region and are not grown on a large scale, that is, nowadays they are very rare in the region, to some extent it provides protection against disease and harmful organisms in this region and does not require chemical protection of plants, which contributes to the preservation of the environment.

Conclusions

One of the main areas of selection work with lofant gunas is to create environmentally-friendly conditions for growing in different regions of immune varieties with high productivity and aroma and a significant yield of essential oils. On the basis of the conducted researches it was established that the productivity of lopant gum and mass fraction of essential oil in plants depends on the variety and weather conditions of the year. However, breeding remains the main means of increasing the yield and quality of plant raw materials and solving the problems of providing the market with a variety of spicy and aromatic crops.

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