

THE ROLE OF SULFUR IN THE NUTRITION OF VALERIAN OFFICINAL

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Regardless of the soil difference and the ratio of nitrogen to sulfur, the latter is largely absorbed by the leaves and reproductive organs of Valerian officinal. At the same time, the initial phase of the total consumption of this element was higher in plants cultivated in the conditions of sierozem. Against the background of N:S, equal to 1:0.25, the sulfur content in typical grey soil exceeded meadow soil by 0.040 and 0.050 g/plant, respectively, in the leaves and buds. With the transition of plants to the phase of flowering and ripening, sulfur begins to be intensively absorbed by plants on meadow soil, which is consistent with the dynamics of its content in the soil medium.

Plants on the background of sulfur were characterized by greater growth activity and accumulation of roots and rhizomes in dynamics. On typical sierozem, stem height in variants 3-5 exceeded control by 4-5 cm, the number of stalks was 0.6 - 0.8, and on meadow soil, 5-9 cm and 0.7-0.9, respectively.

Summarizing the obtained results, it can be considered that the effect of sulfur in increasing the growth activity of Valerian officinal and production process as a whole is quite high.

Key words: sulfur, nitrogen, vegetation, typical sierozem, meadow soil, plant physiology, phosphorus, potassium.

Introduction. It should be noted that Valerian officinal, like other plants, needs many other nutrients. Thus, a positive effect of sulfur was revealed when NPC was added under cereals [1,2]. The physiological role of NPC and sulfur is associated with their participation in the synthesis of proteins, nucleic acids, amino acids, etc. Therefore, their presence in the nutrient medium is an important condition for the activation of metabolic processes underlying high plant productivity. In this regard, the need for sulfur nutrition on industrial, fruit, vegetable, medicinal and other crops is widely recognized in world science.

Research methods. We studied the change of sulfur content in plants of Valerian officinal in ontogenesis on typical sierozem and meadow soils of the Tashkent oasis depending on the ratio of this element to nitrogen. The initial content of available (soluble) sulfur was at the level of 9 mg/kg on typical sierozem and 7.4 in meadow soil.

Research results. Studies have shown that with an increase in the ratio of sulfur to nitrogen (nitrogen dose of 100 kg/ha) from 0.1 to 0.25, the sulfur content in the soil increased relative to the control with the exception of its addition. The highest sulfur content was observed in the typical grey soil during the budding period, amounting to 17.1 mg/kg, a decrease occurs at subsequent stages, the smallest values occur during the maturation phase and are explained by the nature of sulfur absorption. During the budding period, the meadow soil was distinguished by a noticeably low sulfur content. With an N:S ratio of 1:0.25, it was only 12 mg, with a maximum (18.1 mg/kg) in the flowering phase, when the difference reached 5.6 mg/kg in relation to grey soil. Low levels of sulfur in the early reproductive phase are explained, it must

be assumed, by the intensity of sulfur absorption by the soil microflora, with greater enrichment of meadow soil with organic matter.

Regardless of the soil difference and the ratio of nitrogen to sulfur, the latter is largely absorbed by the leaves and reproductive organs of Valerian officinal. At the same time, the initial phase of the total consumption of this element was higher in plants cultivated in the conditions of sierozem. Against the background of N:S, equal to 1:0.25, the sulfur content in typical grey soil exceeded meadow soil by 0.040 and 0.050g /plant, respectively, in the leaves and buds. With the transition of plants to the phase of flowering and ripening, sulfur begins to be intensively absorbed by plants on meadow soil, which is consistent with the dynamics of its content in the soil medium. The total sulfur consumption according to the data obtained in the maturation phase of Valerian officinal is characterized as follows: sulfur removal increased with an increase in the N:S ratio, and especially at a ratio of 1:0.20 - 1:0.25, with the advantage of a background of meadow soil, including both vegetative and generative organs. Plants on the background of sulfur were characterized by greater growth activity and accumulation of roots and rhizomes in dynamics. On typical sierozem, stem height in variants 3-5 exceeded control by 4-5cm, the number of stalks was 0.6 - 0.8, and on meadow soil, 5-9 cm and 0.7-0.9, respectively.

The introduction of sulfur contributed to obtaining an increase in the yield of Valerian officinal in variants 3-5 on typical sierozem of about 2.7 - 5.8 c/ha, meadow soil -3.6 -6.7 c/ha compared to the control.

Conclusion. Thus, a sufficiently high effect of sulfur exposure in increasing the growth activity of Valerian officinal and production process as a whole has been ascertain.

References

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