NITROGEN CORRELATION TO SULPHUR AS INDICATOR OF ARTICHOKE PRICKLY NEED FOR CONTAINING SULPHUR

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The authors found that the elements nitrogen, phosphorus and potassium in the control version without sulfur (N:S = 1:0), the ratio of these elements is reduced, indicating that the artichoke prickly is clearly deficient in sulfur. As the ratio N:S increases, the ratio of these nutrients in the leaves increases, especially on meadow soil. With the onset of the phase of the beginning of fruit formation in the leaves of the artichoke prickly, grown on a typical sierozem, the magnitude of this ratio decreases somewhat, but the regularity of the change remains both in the phase of the onset of flowering. Therefore, the N:S ratio in the leaves in the flowering stage of artichoke prickly 1:0,15-0,16 on a typical sierozem and 1:0.16-0.18 in meadow soil during the flowering phase indicates a high supply of this plant with sulfur nutrition.

Key words: nitrogen, phosphorus, potassium, sulfur, N:S ratio, flowering, fruit formation, leaves, dose.

Introduction. It is known that the artichoke prickly is very responsive to nitrogen, phosphorus, potassium (NPK) nutrition, it is they which make the main stake in its cultivation. It should be noted that during the life cycle of the artichoke prickly, like other plants, many nutritional elements are needed. Thus, a positive effect of sulfur was revealed when the PK was mixed for cereals (Mosolov, 1976).

The physiological role of PK and sulfur is associated with their participation in the synthesis of proteins, nucleic acids, amino acids, etc. Therefore, their presence in a nutrient medium is an important condition for the activation of metabolic processes underlying the productivity of medicinal plants. At the same time, non-saline irrigated soils of the cotton zone experience a deficiency in sulfur, mainly due to a change in the assortment in reducing the production of sulfur-containing mineral fertilizers. On the other hand, the dynamics of the sulfur content in irrigated soils and its influence on the artichoke prickly and other crops have practically remained poorly researched. (Gulimov, 1980, Todesse 1988). At the same time, the need for sulfur nutrition in various agricultural crops is widely recognized in the world science. In practice in England, the sulfur content of plants within 0.2% is taken as a threshold value indicating the loss and necessity of sulfur in the soil. The USA pays special attention to the ratio of nitrogen to sulfur. It is determined that it should be in the zone 1:0; 3:0.6 (with a nitrogen dose of 200 kg/ha).

According to V.S. Shardakov (1940) on the third above (on the main stem) leaves there is an enhanced metabolism and therefore they are an indicator organ, characterizing the supply of not only nitrogen but also sulfur.

Methods of research. The investigations were carried out in the form of both vegetative and field experiments at the experimental site of the Tashkent Pharmaceutical Institute and at the agricultural experimental station of the Tashkent State Agrarian University.

Results of the study. In conditions of field experiments in the period of mass flowering and fruit formation, the ratio on the third leave was studied to characterize the provision of artichoke prickly with sulfur. (Table №1)

Table 1

Change in the ratio of N:S depending on soil conditions and the level of sulfur nutrition. Field experiments.

Variant number	ratio N:S	Typical sierozem		Meadow soil	
		Beginning of flowering	Beginning of fruit formation	Beginning of budding	Beginning of fruit formation
1	1:0	1:0,10	1:0,10	1:0,12	1:0,08
2	1:0,1	1:0,12	1:0,15	1:0,14	1:0,10
3	1:0,15	1:0,15	1:0,14	1:0,15	1:0,12
4	1:0,20	1:0,16	1:0,15	1:0,16	1:0,14
5	1:0,25	1:0,15	1:0,16	1:0,18	1:0,16
6	1:0,30	1:0,15	1:0,16	1:0,17	1:0,16

From the data given, it can be seen that the ratio varies markedly depending on soil conditions and the ratio of nitrogen to sulfur. In the leaves of the artichoke prickly, grown on a typical sierozem, the ratio (annual nitrogen norm of 60 kg/ha) during the flowering phase was from 1:0.10 to 1:0.16, and on meadow soil from 1:0.12 to 1:0, 18, i.e. was broader in the latter case. This indicates a relatively high supply of plants with sulfur on meadow soil than on typical sierozem.

At the same time, in the control variant without sulfur (N:S = 1:0), the ratio of these elements decreases, which indicates that the artichoke prickly is obviously deficient in sulfur. As the ratio N:S increases, the ratio of these nutrients in the leaves increases, especially on meadow soil. With the onset of the phase of the beginning of fruit formation in the leaves of the artichoke prickly, grown on a typical sierozem, the N:S ratio is somewhat reduced, but the regularity of the change remains both in the phase of the beginning of flowering. Therefore, the N:S ratio in the leaves in the flowering stage of artichoke prickly 1:0,15-0,16 on a typical sierozem and 1:0.16-0.18 in meadow soil during the flowering phase indicates a high supply of this plant with sulfur nutrition.

Conclusions. The results of our studies indicate a relatively high provision of artichoke prickly plant with sulfur on meadow soil than on typical sierozem.