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ROLE OF SULPHUR IN OBTAINING ENVIRONMENTALLY FRIENDLY PRODUCT BY ARTICHOKE PRICKLY

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Introduction. It is known that the agricultural, medicinal and other plants are very responsive to nitrogen, phosphorus and potassium nutrition, so it is on them is the main stake in the cultivation of various crops.

It should be noted that during the life cycle of medicinal plants (artichoke prickly, valerian, etc.) require numerous other nutrients. So, we found a positive effect of sulfur in obtaining environmentally friendly products with a lower content of nitrates (Mosolov, 1979, Tolstousov, 1974). The physiological role of nitrogen, phosphorus, potassium and sulfur is associated with their participation in the synthesis of essential compounds underlying the production of high quality environmentally friendly products. However, irrigated soil of Uzbekistan felt deficiency in sulfur, mainly due to changes in range and reducing sulfur fertilizers. On the other hand, the sulfur content dynamics in irrigated oasis soils and its influence on plant remained practically scarcely explored (Taddesi, 1988 and others.). At the same time, the need for sulfur supply of medicinal and other crops in obtaining environmentally friendly products are widely recognized in the world of science.

In practice of England sulfur content in plants within 0.2 percent is taken as the threshold value, and indicating a decrease in the need for applying sulfur into the soil. It the US it is paid special attention to the ratio of nitrogen to sulfur, it is determined that it should be in the range of 0.3-0.6.

The objective of our research was to study the effect of different doses of sulfur on conversion in the tissues of artichoke prickly and valerian officinal, nitrogen and production of ecologically clean products.

Methods of research. For this purpose, we have laid the field experiments that examined changes in the sulfur content in the tissues of artichoke prickly and its influence on the content of protein, protein-free and nitrate nitrogen in the leaves.

Results of research. Studies conducted by us ascertained that the sulfur content in the leaves of plants plates varies considerably depending on the age of the plants and their provision with this element (Table 1).

Table 1

Sulfur content in artichoke prickly leaves depending on dose of its applying (field experiments)

№ Of variant	Ratio N:S	Sulfur doses kg/ha	Budding	Flowering	Maturation	
					leaves	Fruit elements
13.	1:0,00	0	0,112	0,121	0,65	0,136
14.	1:0,10	20	0,125	0,128	0,72	0,145
15.	1:0,15	3	0,134	0,137	0,111	0,161
16.	1:0,20	40	0,140	0,134	0,100	0,163
17.	1:0,25	50	0,146	0,139	0,113	0,166
18.	1:0,30	60	0,148	0,141	0,115	0,165

The data show that the high sulfur content is confined to the phase of budding and

flowering, and maturation phase it is greatly reduced. A higher sulfur content in the leaves was observed in applying sulfur of 50-60 kg / ha (or in ratio of nitrogen to sulfur 1: 0.25-0.30). In the leaves of control plants is significantly reduced sulfur content. It should be noted that in the maturation phase of plants quantitative parameters are reduced considerably, that should be explained by efflux (outflow) of sulfur from the leaves into fruit organs.

Consequently, these data show a clear disadvantage in tissues of control plants of sulfur that may adversely affect the conversion of nitrogen to more complex compounds (protein) and the accumulation of nitrates in plant tissues that disturbs obtaining environmentally friendly product (Table 2).

Table 2

Influence of sulfur nutrition level on nitrogen compounds content (field experiments).

№ Of variant	ratio N:S	Sulfur doses kg/ha	budding	flowering	maturation	
					leaves	Fruit elements
19	1:0.00	0	2.68	1.79	0.89	25
20	1:0.10	20	2.79	1.91	0.93	20
21.	1:0.15	3	2.96	1.99	0.98	19
22.	1:0.20	40	3.14	2.11	1.01	16
23.	1:0.25	50	3.17	2.15	1.04	15
24.	1:0.30	60	3.18	2.14	1.05	14

Test results showed that with increasing of sulfur dose (or increased ratio of N:S) increases total nitrogen content in the leaves of plants. In leaves the amount of protein in relation to its total content is increased, and nonprotein nitrogen, conversely, decreases, simultaneously occurs reduction of nitrates in the leaves of plants.

Conclusion. When the ratio of nitrogen to sulfur (N: S) equal to 1:0,25 i.e. at optimal variants (sulfur 50 kg/ha), the content of nitrate nitrogen in the leaves of the artichoke prickly and other plants reduces almost twice that contributes to the production of environmentally pure plant products.

References

1. Taddesi R.G. Effectiveness of application sulfur under cotton plant depending on the level of mineral nutrition. Candidate thesis. Tashkent, 1988, pp. 47-49.
2. Mosolov I.V. Physiological bases for application of mineral fertilizers M.”Kolos”, 1974, pp.96-97.

Summary

Role of sulfur in obtaining environmentally friendly product by artichoke prickly

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The studies revealed that the ratio N.S equal to 1: 0.25, i.e. to optimally (sulfur 50 kg / ha), the content of nitrate nitrogen in the leaves of the artichoke prickly and valerian officinal and other plants is reduced by almost half, which contributes to production of environmentally friendly plant products.