

Influence of various forms of nitrogen fertilizers on the biosynthesis of photosynthetic pigments in leaves *Artemisia leucodes* Schrenk

Abzalov A.A., Latipova E.A.

Tashkent Pharmaceutical Institute, Tashkent city, Uzbekistan

E-mail: akmal.38@yandex.ru

*The authors found that in the leaves of *Artemisia leucodes schrenk* cultivated in the absence of phosphorus (variant 1), the minimum content of the total amount of yellow pigments in all phases of development was noted in comparison with those of the experimental variants. The average and high content of phosphorus with the combination of nitrogen and potassium on the contrary promotes increasing in the content of carotenoids. Thus, the content of carotenoids in the budding phase in the control of phosphorus deficient was 0.65 mg / g crude. In the leaves of plants that received a high dose of nitrogen, phosphorus, potassium and cobalt, a high content of yellow pigments was noted in all phases of plant development. Apparently, higher doses of fertilizers in the presence of cobalt contribute to a longer period of vegetation and the process of pigmentation.*

Keywords. Photosynthesis, pigments, chlorophylls, carotenoids, plastids, nutritional conditions, plant productivity, biosynthesis, nitrogen, phosphorus, sulfur.

Purpose of the study. Increasing the yield of agricultural and medicinal crops, including *Artemisia leucodes* Schrenk, is associated with increasing in nutrition. It is known that the formation of the plastid apparatus, the content of photosynthetic pigments, it depends on the conditions of nutrition. Mineral nutrition is one of the main regulatory factors of the environment, with which you can achieve maximum productivity of plants. The purpose of our research was to find out the physiological reaction of *Artemisia leucodes schrenk* to the insufficient and additional introduction of phosphorus into the soil at different levels and forms of nitrogen fertilizer.

Methods of research. The studies were carried out by laying laboratory, vegetative and field experiments. During the vegetation period, the observations of *Artemisia leucodes* Scherk plants were carried out and the content of chlorophylls and carotenoids was determined in leaves by the method of Wettstein D.V. (1957). The capacity of the vessels was 10 kg of soil with sand in ratio 3: 1. Both vegetative and field experiments were carried out according to the method of Scientific Research Institute of cotton growing (1977). The area of each plot is 480 m². The arrangement of plants 60x25x1 with a density of 66680 bushes per ha. Repetition of vegetative experiments is 10, and field tests are 4-fold.

Results of the study. The results of the analyzes showed that the conditions of mineral nutrition significantly affect the content of plastid pigments in the leaves of *Artemisia leucodes schrenk*. For example, in the budding phase, the chlorophylls' content in the phosphorus-free control was 1.15 mg / g of raw material in the variant where 5 g of phosphorus and the same amount of nitrogen in various forms were introduced, the chlorophyll content varies between 1.22-1.32 mg / g crude. Pigmentation increases when nutrition with nitrogen, phosphorus and potassium (double the norm) increased. In this case, the content of chlorophylls in plant leaves that were grown with the presence of microelement of cobalt increases by 41.7% compared to their content in the leaves of control plants. With the onset of the

flowering phase, the content of chlorophylls (a + b) increases in all investigated variants of the experiment. The highest (2.65 mg / g of raw material) chlorophyll content was noted in the plants of variant VIII and the lowest (1.88 mg / g wet weight) amount of chlorophyll + b in variant I, where the *Artemisia leucodes schrenk* plants were grown without addition of phosphorus. During periods of fruit formation and maturation of seeds, the content of plastid pigments begins to decrease, especially it is clearly seen in plants grown without the introduction of phosphorus fertilizers. Increasing the content of chlorophylls in leaves of plants grown under different background of nutrition is mainly due to chlorophyll "a", while chlorophyll "b" changes not less than chlorophyll "a". Determination of the content of yellow pigments in plant leaves showed that the level of phosphorus nutrition significantly influences the content of these pigments. During the ontogenetic development of plants cultivated in various feeding conditions, the amount of carotenoids varies greatly. The maximum of them falls on the phase of flowering and fruit formation, and a minimum in the phase of 3-4 true leaves and ripening of seeds.

Conclusions. The growth of plants under various conditions of mineral nutrition has a significant effect on the content of plastid pigments. The exclusion of one of the basic elements of nutrition leads to decreasing in plastid pigments. In our experiments, exclusion from the nutrient mixture of phosphorus led to the most significant decreasing in the content of photosynthetic pigments, in the leaves of plants *Artemisia leucodes Schrenk*.