

EFFECT OF TRICHODERMA ON THE MORPHOPHYSIOLOGICAL PARAMETERS  
OF SOME WHEAT GENOTYPES<sup>1</sup>A.G. Gadimov, <sup>2</sup>G.A.Mirzayeva, <sup>3</sup>S.A. Abdulbagiyeva, <sup>4</sup>S.M.Rasulova,<sup>1</sup>Associate professor, Institute of Botany, Azerbaijan, E-mail: agadimov@mail.ru<sup>2</sup>PhD student, Institute of Botany, Azerbaijan<sup>3</sup>Associate professor, Research Institute of Crop Husbandry<sup>4</sup>Associate professor, Institute of Botany, Azerbaijan<https://doi.org/10.5281/zenodo.8385198>

Among the many bacteria and fungi used as biocontrol agents, Trichoderma is one of the most studied and applied. These micromycetes increase the resistance of plants to biotic and abiotic stresses, stimulate the growth and development of plants, and improve the assimilation of nutrients. They are used in biocontrol of processes such as photosynthetic activity, hyphal growth, cell wall degradation, etc. The biological activity of trichoderma lies in the fact that the metabolites synthesized by them have different purposes [1]. Taking into account these characteristics, the effect of *Trichoderma asperellum* fungus on the morphophysiological parameters of hard Goytepe and soft Gobustan wheat varieties was studied in the research.

The seeds of experimental plants were soaked in culture solution of *Tr. asperellum* fungus for 15-19 hours before sowing. Fertilization was carried out during planting, bushing and spike phases. Irrigation was carried out at the beginning of bushing and spike. Chlorophyll a, b and carotenoids in the leaf extract were determined with a spectrophotometer (Genesys 20, Thermo Scientific, USA) in 96% ethanol at wavelengths of 664, 648, 470 nm, respectively, and calculated as mg/g dry weight [2].

It was shown that the micromycete has a positive effect on the length, wet and dry weight of the aerial part and roots of the plant in both varieties. The positive effect of trichoderma is more clearly visible in the development of the roots of both varieties. Thus, although the lengths of the roots in the experimental variants were shorter than the control (1.6 cm in the Gobustan variety and 0.6 cm in the Goytepe variety), as a result of the very good development of the side roots, both wet and dry weights were higher than the control; Compared to the control, the wet weight and dry weight of the roots increased by 57.44% and 40% in the Gobustan variety, respectively, by 216% and 166% in the Goytepe variety.

Treatment of seeds with *Tr. asperellum* cultural solution showed a change in the amount of photosynthetic pigments in research plants. Chlorophyll a, b and amount of carotenoids was high in both cultivars compared to the control. The amount of chlorophyll a was 18.9%, the amount of chlorophyll b - 24.6%, and the amount of carotenoids - 49.3% higher in the Goytepe variety. In the Gobustan variety, the amount of chlorophyll a was 10.8% higher than the control, the amount of chlorophyll b - 9.6%, and the amount of carotenoids - correspondingly 38.3% higher.

Changes in morphological parameters and photosynthetic pigments of a plant treated with Trichoderma eventually manifest themselves in the productivity and structural elements of plants. Thus, compared with the control, the Goytepe variety showed an increase in the ear mass by 35.7%, the mass of 1000 grains -7.19%, and the Gobustan variety - 31.9% and 8.08%, respectively. Compared to the control, the yield increase was 18.3% for the Goytepe variety and 22.3% for the Gobustan variety.

Thus, *Tr. asperellum* fungus, regardless of the variety, has a positive effect on the morphological indicators of the wheat plant and also increases the amount of photosynthetic pigments. This results in a high grain yield formed as a result of all product components.

#### REFERENCES

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