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Evaluation of the Effect of Trichoderma Seed Treatment on Wheat Growth Traits

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The present study was conducted in order to investigate the effect of Trichoderma seed treatment as a growth stimulant on the vegetative traits of wheat in Shahid Rajaei Agriculture and Industry Company of Dezful city in the form of a completely randomized block design in the crop year 1402-1401. First, the seeds were disinfected by Trichoderma fungus and then cultivation was started. Growth traits that could be measured during the growing season included plant height, number of seeds per spike, spike weight, number of rows per spike, and weight of 1000 seeds. The analysis of the final data showed that treating seeds with Trichoderma biological fungus caused more productivity of the plant from the soil, as well as a significant increase and improvement in the growth characteristics of the treated plants.

Keywords: Biological control, Trichoderma, Shahid Rajaei Co, Wheat

Introduction: Wheat is the first grain and the most important crop in the world, being one of the main agricultural products that meet the food needs of people in various countries. One of these biological materials is the Trichoderma fungus, which exerts its biocontrol activity through various mechanisms such as mycoparasitism, antibiosis, competition for food and space, stimulation of resistance mechanisms, stimulation of plant growth and development, alteration of environmental conditions especially the rhizosphere, and increasing the solubility of mineral elements for plant uptake (Salahi Ostadi et al., 2021).

Results and Discussion : Based on the results obtained from the comparison of mean data, it was found that plants coated with Trichoderma had higher growth and yield in all aspects compared to the control (Table 1).

Conclusion: Based on the results of this research and other conducted experiments, it can be stated that the application of the biological fungus Trichoderma, due to its improvement of plant growth traits, plays a significant role in improving soil quality and can be a useful method for use on a large scale in sustainable agricultural systems.

Materials and methods: This experiment was conducted in the 2022-2023 agricultural year on the lands of Shahid Rajaei Dezful Agriculture Company in Dezful, in a randomized complete block design. The seeds were first coated with Trichoderma fungus at a rate of 15 per thousand, and after drying, they were planted. During the growth period, plant traits including (plant height, spike length, number of grains per spike, number of rows per spike, spike weight, and 1000-grain weight) were examined and sampled.

Table 1 - Measured Traits in the Seed Coating Experiment with Trichoderma

Measured Indices	Treatment	Yeild
Plant height (cm)	91.8	75.5
Spike length (mm)	16.5	13.2
Number of grains per spike	37.2	28.7
Number of rows per spike	18.1	13
Spike weight (gr)	3.45	1.85
1000-grain weight (gr)	44.5	37.52

References : Salahiostad M, Abedy B and Selahvarzi Y. 2021. Effect of Trichoderma harzianum on growth characteristics and absorption of some elements in basil under drought stress. Environmental Stresses in Crop Sciences, 14(4): 1017-1027.