

THE EFFECT OF CERTAIN SUPRAMOLECULAR COMPLEXES ON WHEAT GRAIN VIRTUE AND CHLOROPHYLL AMOUNT

Kh.T. Saydullaeva¹, T.A. Djuraev², Kh.A. Yuldashev¹

*A.S.Sadykov Institute of Bioorganic Chemistry, Academy of Sciences of the Republic of
Uzbekistan¹, 83 Mirzo Ulugbek St., 100125.*

E-mail: saydullayeva2018@mail.ru

Gulistan State University², micro-district 4, 120100.

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Abstract. *In this scientific article, in order to determine the biological activity of supramolecular complexes of glycyrrhizic acid with phytohormones, the effect of complex solutions prepared at different concentrations on wheat germination and the growth and development of seedlings was studied.*

Key words: *glycyrrhizic acid, 6-benzylaminopurine (6-BAP), supramolecular complex, 3-indolyl butyric acid (IBA), sodium chloride, fertility, germination, chlorophyll.*

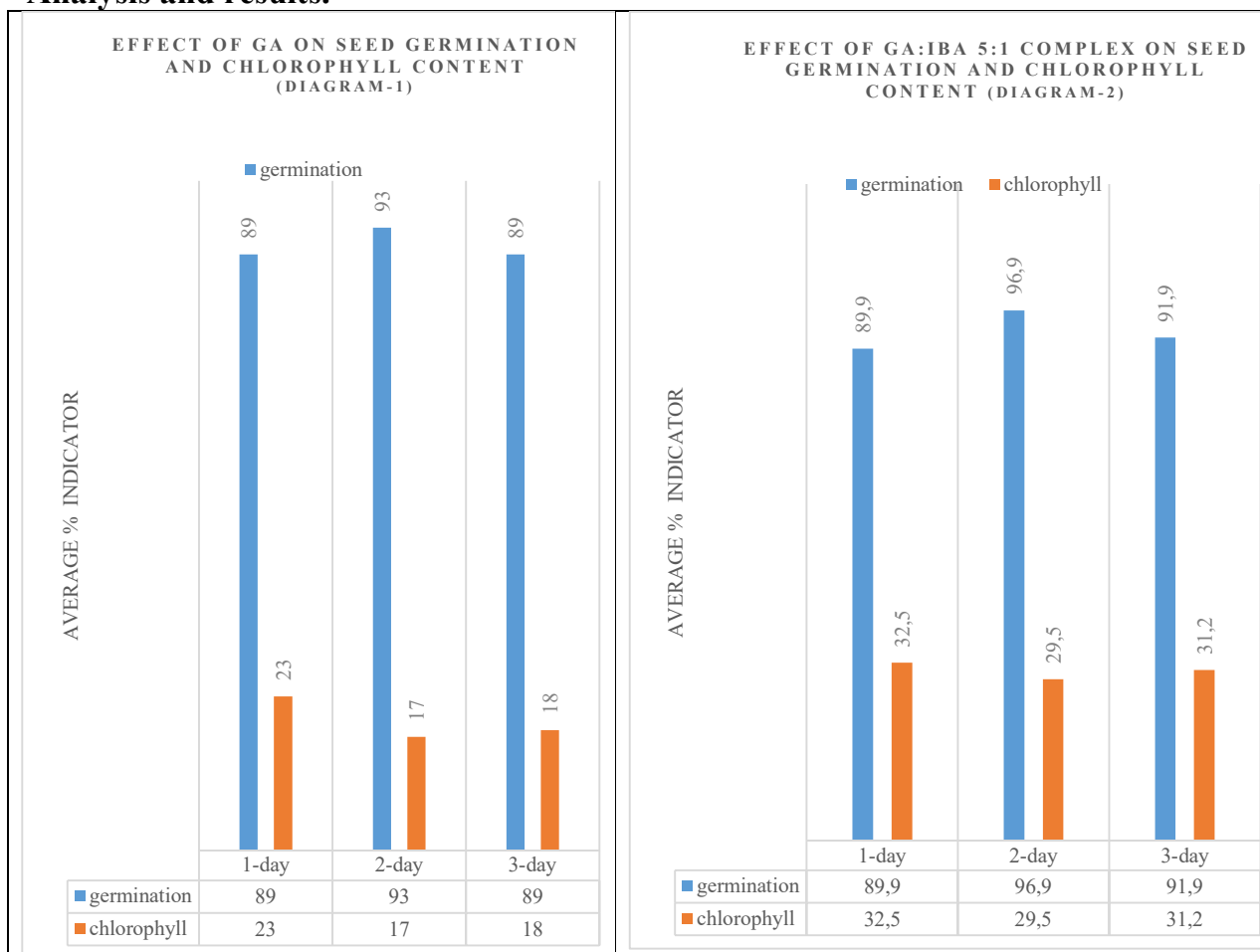
Literature analysis. In the "Book of Medical Laws" of our great-grandfather Abu Ali Ibn Sina, it was mentioned that the root of is a cure for colds, inflammation, liver diseases and other diseases. Currently, medicinal properties of licorice plant and the triterpenoid contained in its root - glycyrrhizin acid (GA), its salts are isolated, and many derivatives are obtained. In particular, its wide-scale biological activity was one of the main reasons for the emergence of GA chemistry. In particular, scientists have conducted and are currently conducting a number of studies on the gel-forming properties of GA, its salts and derivatives, obtaining supramolecular complexes based on them, and biological activity. Not only were many supramolecular complexes obtained with GA, they were converted from water-insoluble to highly soluble.

One of the most notable biological activities, GA and its salts have been studied on the growth and development of wheat in different salinity soil conditions, and it has been found that they have stimulating properties in the growth and development of plants. These compounds are important in controlling the growth and development of plants, protecting them from external factors, strengthening the immune system or creating resistant varieties [1-2]. Phytohormones are plant bioregulators, most of which are not well soluble in water [3]. Taking into account the above, in order to obtain complexes of GA with phytohormones, supramolecular complexes with GA and some phytohormones were obtained and some of their physicochemical parameters and spectral properties were determined. The effect of the received supramolecular complexes on the germination and chlorophyll content of wheat grain was studied [4].

Research methodology. In this case, the wheat grain was kept in the solution of GA complexes for one day, and the germination rate was 83-93%. A relatively high indicator was recorded when the concentration of the solution was equal to 10^{-5} (93.33%). The viability of the seeds kept in the solution for two days was 90-96%. Fertilization in this warrant was 96.67% in a solution with 10^{-7} . Fertilization in seeds stored for three days decreased in 10^{-6} and 10^{-7} options compared to the previous day, but changed in 10^{-5} option. Fertilization was consistently high in this 10^{-5} solution. The amount of chlorophyll in the section of solutions was 16.08-23.59. A relatively high concentration of the reference solution was recorded at a concentration of 10^{-6} and was equal to 23.59 (diagram-1). When

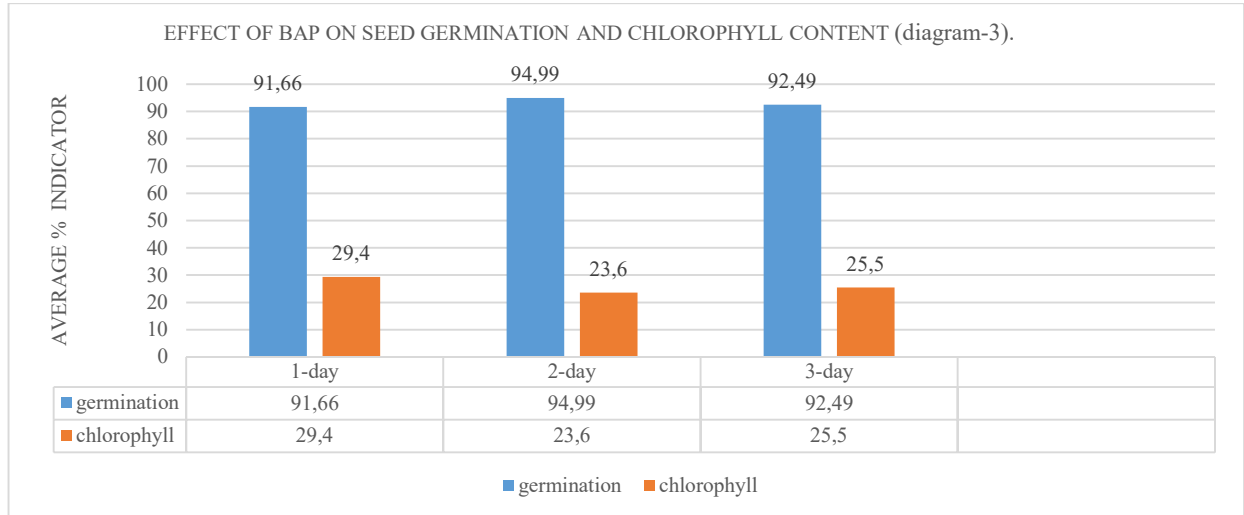
sodium chloride salt was added to the solution, seed germination increased compared to the control. This solution concentration was recorded in 10^{-6} and 10^{-7} concentration options. The observation of such a situation was the low level of action of the sodium chloride salt in a low concentration solution. When wheat grain (GA: IBA 5:1 (control)) was collected in an equal variant, the germination was high at 10^{-7} concentration and was 100%. The amount of chlorophyll was 33.04-32.54 in variants with a solution concentration of 10^{-5} - 10^{-6} . Under the influence of the 0.5% solution of this undissolved sodium chloride salt, the grain germination was high in the 10^{-7} solution and was 93-100%. The amount of chlorophyll was relatively high in the solution with 10^{-4} and 10^{-5} equal to 36.67-29.89 (diagram-2). In the GA: IBA 9:1 (control) warrant of the experiment, the titer was higher in the 10^{-4} variant and was 100%. Chlorophyll content and germination were higher in 10^{-7} solution compared to other cultivars. In this variant, the amount of chlorophyll was equal to 25.84, which was higher than other variants. When exposed to undissolved sodium chloride (GA: IBA 9:1) (0.5% NaCl), the germination and chlorophyll content was 93.3-100% and the chlorophyll content was equal to 93.3-100% and chlorophyll content was 20.05-31.62 (diagram-4).

Analysis and results.

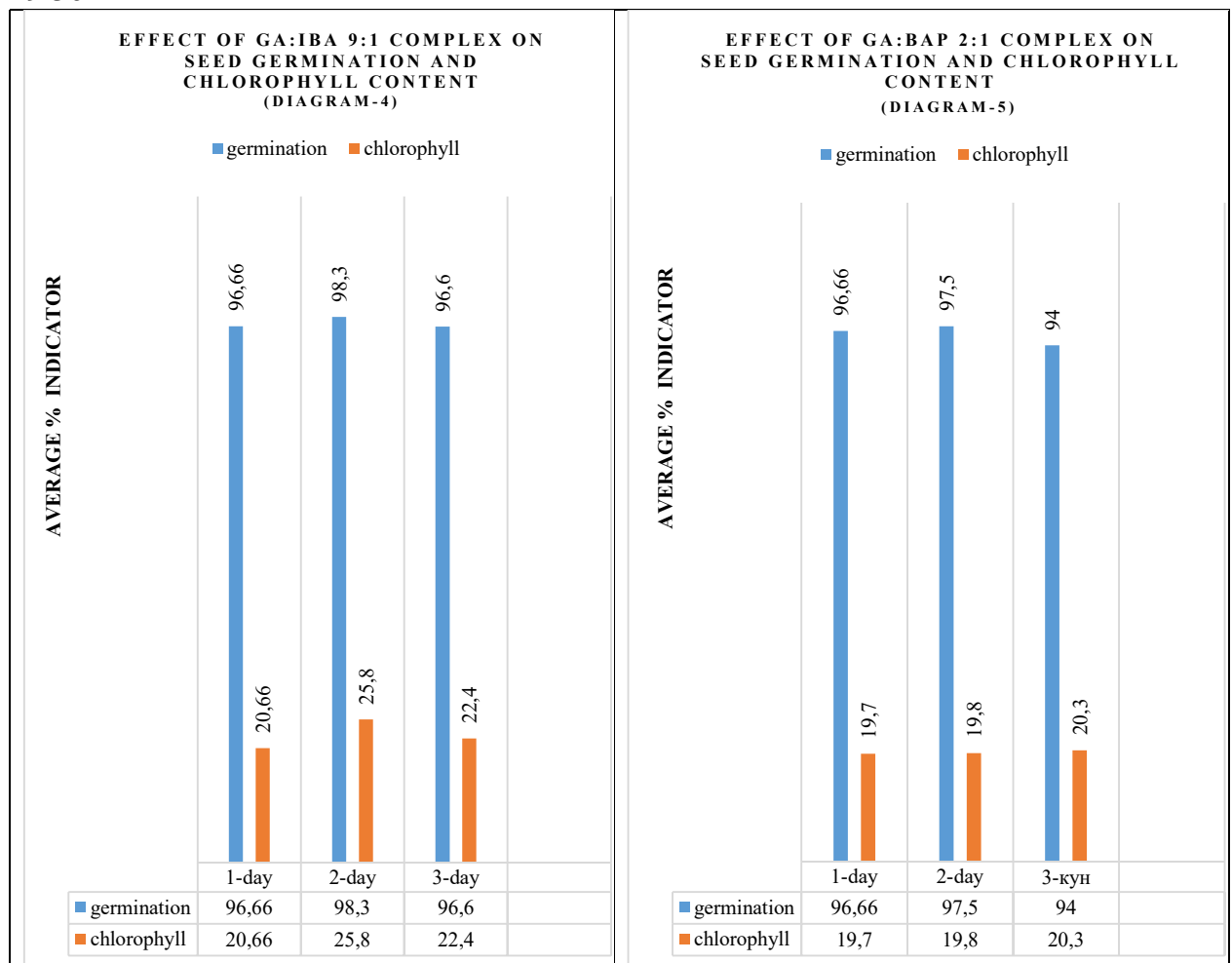


In the version of the experiment with GA: BAP 2:1 (control), wheat was 96-100% in the solution stored for two days. When wheat grain was stored for 3 days, the yield was 90-96.67%. The amount of chlorophyll was higher in the 10^{-4} solution and equaled 23.39. Chlorophyll content also decreased when the solution concentration was 10^{-7} . When a 0.5% solution of sodium chloride was added to this solution, the germination decreased compared to the grain stored for three days in the solution for two days. It was 96.66% when it was stored for two days, and it was 85.83% when it was stored for 3 days. When the

concentration of the solution was equal to 10^{-6} , the content of chlorophyll was high and equaled 21.7-31.36.



In the BAP (control) variant of the experiment, a high result was recorded in wheat grains stored for two days. Fertility and chlorophyll content were high in varmint with 10^{-5} and 10^{-6} , fertility was 93.33-96.67%, and chlorophyll content was equal to 27.74-29.36. When sodium chloride salt was added to this solution, the amount of germination and chlorophylls increased at a concentration of 10^{-6} and became equal to 96.67% and 29.36.



In conclusion. When grain was exposed to saline for 1, 2 and 3 days, germination was higher on 3 days than on 1 and 2 days. This means that the sodium chloride salt affected the germination. The amount of chlorophylls in the 10^{-6} solution of pure glycyrrhizin acid was higher compared to other concentrations. When 0.5% sodium chloride solution was

added to the solution, it was found that the amount of chlorophyll increased from 10^{-6} and 10^{-7} solutions. So, when the solution concentration is equal to 10^{-4} , 10^{-5} , the synthesis of chlorophyll decreased. In the GA: IBA 5:1 option, the amount of chlorophyll was the highest in the 10^{-5} option compared to all options. When this solution was exposed to sodium chloride salt, the amount of chlorophyll in this concentrate (10^{-5}) was high. The GA: IBA 9:1 variant had higher seed germination and chlorophyll content than the control and sodium chloride at a concentration of 10^{-7} . In GA: BAP 2:1 and GA: BAP 2:1 (0.5% NaCl) and BAP (0.5% NaCl) versions of the experiment, it was found that the concentration of the solution was 10^{-6} and the amount of chlorophyll increased.

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