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**SYNTHESIS OF COORDINATION COMPOUND OF COBALT (II)-  
NITRATE GEKSAHYDRATE AND STUDY OF THE INFLUENCE  
PROCESSES ON COTTON VARIETIES SULTAN, UNQURGON.**

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**Abstract:** In the article, the coordination compound formed by cobalt (II)-nitrate hexahydrate, quinazolin-4-one and indole fatty acids is used for the production of cotton "Sultan", "Unkurgon-1" varieties for the first time we want to present the processes of influence on the rooting system. Until now, synthesis processes and biological effects have been studied by individuals, and coordination compounds with these substances have not been synthesized.

**Key words:** Cobalt (II)-nitrate dihydrate, "Sultan", "Unkurgan-1", varieties, coordination compound, quinazoline-4- on and indole fatty acids, anthranilic acid, formamide, 2.5% and 5% solutions, stimulants, physiologically active substances.

**Introduction**

Biologically active substances have a positive effect on growth by increasing the fertility and germination capacity of seeds, accelerating the ripening of the crop, increasing the plant's resistance to drought, salt, disease and pests. Substances that accelerate growth processes (stimulants, physiologically active substances) contain natural phytohormones along with organic additives, these substances regulate the division and normal development of cells in the plant, accelerate the growth of the stem and branch growth and leaf metabolism improves, activates physiological and biochemical processes [1]. Auxin phytohormone actively participates in nucleic acid and protein metabolism, activates root, stem and leaf growth [2-3]. Plants also have a message-carrying system similar to the nervous system of trichomes, and when the concentration of phytohormones in the cell changes, a message is sent to one or another part of the plant body. The balance of phytohormones changes in the order

of growth depending on the periods of seed germination, growth, flowering, fruiting and ripening. During each growth period, the phytohormonal balance changes under the influence of external factors such as cold and hot temperatures, light, humidity, atmospheric pressure, drought, various pathogens, pests, and chemical agents, and a certain o causes changes and shows a specific reaction to external influences. That is, photosynthesis accelerates, metabolism improves, the number and weight of crop elements increases, stress conditions - water shortage, resistance to adverse weather conditions, and tolerance to pathogens and harmful insects increase [4-6]. Changes in the action of hormones caused by external stress factors (drought, salt, heat, hot temperature, cold, etc.), controlled by biological phytohormones, improve the plant's mutagenic and protective system, physiological and genetic processes the same course is ensured in favorable or unfavorable conditions [7]. As a result of many years of scientific research at the Cotton Research Institute of Uzbekistan, when stimulants are applied to seeds before planting, germination is accelerated, the root system develops vigorously, and the plant absorbs more nutrients from the soil [8-14].

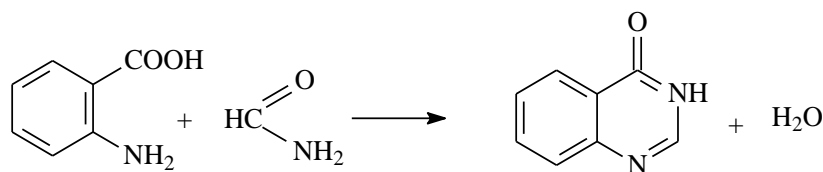
Synthesis of biologically active substances and the processes of their impact on various plants have not been studied by anyone until now. Below, we would like to present for the first time the effects of cobalt (II)-nitrate dihydrate, quinazolin-4-one and indole fatty acids on the rooting system of cotton varieties "Sultan", "Unkurg'on-1". Until now, synthesis processes and biological effects have been studied by individuals, and coordination compounds with these substances have not been synthesized.

## Metods and results

### 1. Synthesis of quinazolin-4-one.

0.2 mol of anthranilic acid and 0.2 mol of formamide are placed in a round-bottom flask.

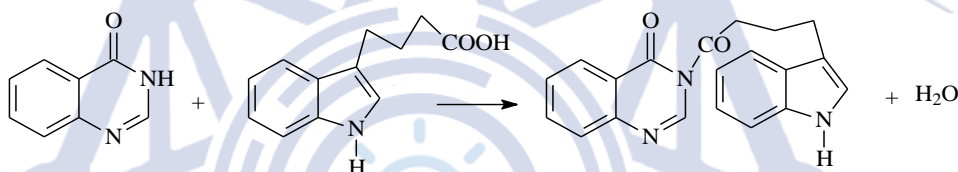
The reaction mixture was refluxed at 150°C for 1 hour in Woodda alloy, then cooled to room temperature. When placed in cold water, white crystals formed, filtered, dried, recrystallized in alcohol. The reaction takes place as follows.



## 2. The effect of quinazolin-4-one with 3-indolyl butyric acid.

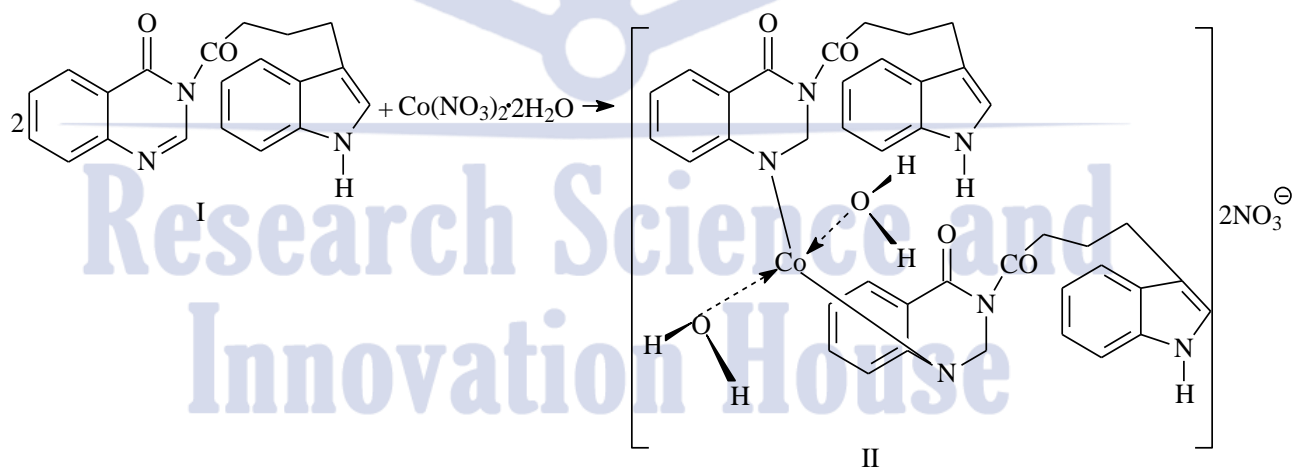
0.2 mol of quinazolin-4-one and 0.2 mol of 3-indolyl butyric acid are placed in a round-bottom flask.

The reaction mixture was refluxed in a water bath at 80-90°C for 3 hours, then the resulting mixture was cooled to room temperature. When the formed crystals were placed in water, yellow crystals were formed, filtered, dried, and recrystallized in alcohol.



## 1. Preparation of coordination compound of cobalt (II)-nitrate and quinazolin-4-one with 3-indole butyric acid.

The reaction product of 0.2 mol of quinazolin-4-one with 3-indolyl butyric acid and 0.1 mol of cobalt (II)-nitrate dihydrate was placed in a porcelain mortar and mechanically mixed with a mixer for 3 hours. The ingredients being mixed are cleaned every 10-15 minutes by scraping around the porcelain mortar and the mixer. The compound formula can be expressed as follows.



Experimental part

Kobalat (II)-nitrate obtaining a coordinate combination with quinazoline-4-on. 0,1 moles of cobalate (II) – nitrate, 0,2 moles of quinazoline-4-one the porcelain is put in a mortar and mixed with a mixer in a mechanical way for 3 hours. The ingredients being mixed are cleaned every 10-15 minutes by scraping around the porcelain mortar and the mixer. The formula of the combination can be expressed as follows.

### CONCLUSION

The expected results in our experiment consist of the following steps.

1. 2.5% and 5% solutions of product II in distilled water were prepared as a result of the experiment.
2. 10 seeds of cottons "Sultan", "Unkurgon-1" were soaked in a 2.5% solution for 5 hours and 10 hours.
3. 10 seeds of cottons "Sultan", "Unkurgon-1" were soaked in a 5% solution for 5 hours and 10 hours.

Effect of the obtained substance II on seed germination.

The seeds were placed in a thermostat in 4 petri dishes and 1 sample of 10 pieces, a total of 5 petri dishes. Temperature 27°C, humidity 40%. Seeds soaked in a 2.5% solution for 5 hours showed growth processes compared to those in 10 hours, seeds soaked in a 5% solution for 5 hours showed growth processes compared to those in 10 hours. This is how the speed of root growth was achieved.

We believe that it is appropriate if the seeds are soaked in a 2.5% solution for 5 hours in the suspension of the root.

In conclusion, we should say that this complex coordination compound is important in biochemical processes in the organism of beautiful plants, and the cobalt divalent cation in this compound is a necessary trace element for the assimilation of molecular nitrogen in atmospheric air.

The lack of divalent cobalt cation in the plant organism and in the soil in relation to the daily need is the cause of the impact on the process of nitrogen assimilation.

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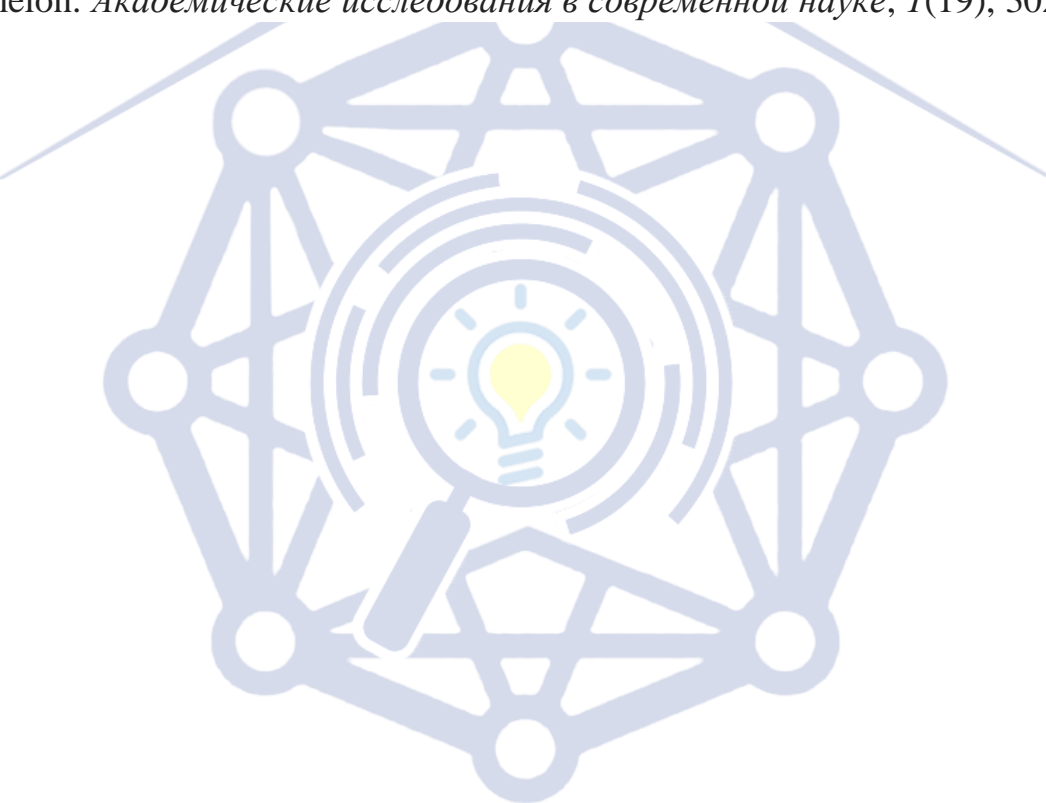
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