

## **Influence of Br.Sp-1, Br.Sp-2 Strains of Nodule Bacteria and the Biopreparation "Bioquvvat" on the Ability of the "Barqaror" Mung Bean Variety to Form Nodules**

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**Annotation:** In the experiment, the influence of strains of nodule bacteria Br.sp-1, Br.sp-2 and the biopreparation "Bioquvvat" on the formation of nodules of the "Barqaror" mung bean variety was studied. During the experiment, the formation of tubers varied in each variant depending on the type of biopreparation and the plant variety. The highest indicator for the "Barqaror" variety was observed in the 2nd variant of the experiment when sowing mung bean seeds inoculated with the biopreparation "Bioquvvat." At the same time, an average of 66.2 tubers formed on each plant. The lowest indicator was observed in the control variant - 33.9 tubers were formed.

**Keywords:** Azotofixation, symbiosis, mung bean, biopreparation, nodules, nodule bacteria.

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## Introduction

According to the World Food Organization (FAO), 5.3 million tons of mung beans are grown annually worldwide. Nearly 90% of the harvested crop is accounted for by Asian countries. India is the world leader in the cultivation and consumption of mung beans. More than 60% of the world's mung bean fields are located in India. The country harvests 1.3 million tons of grain annually. Next are China (920 thousand tons), Myanmar (900 thousand tons), PRC (600 thousand tons), Thailand (350 380 thousand tons), Indonesia (250 thousand tons), Pakistan (230 thousand tons), and Uzbekistan (200 thousand tons).

Obtaining a high yield of high-quality varieties of mung beans will contribute to meeting the population's demand for high-quality, nutritious, protein-rich products, the development of livestock and poultry farming, as well as improving the economic situation of farms. Currently, mung beans are widely cultivated in Uzbekistan as a valuable legume crop. In this regard, there is a need for a detailed study of their biology, including the ability to assimilate atmospheric molecular nitrogen in symbiosis with nodule bacteria. One way to increase this ability is to inoculate seeds with highly active nodule bacteria before sowing (Allen and Allen, 1981). Unlike rhizobia, which is characteristic of conventional legumes, the presence of effective strains in the soil is usually insignificant. Therefore, it is necessary to select specific nodule bacteria that can serve as a basis for the production of inoculating agents for plants.

The experiments were conducted under field conditions. In the research, the following methods were used: "Methods of Conducting Field Experiments" (T.UzPITI, 2007), "Methods of Field Experiment" (B.Dospikhov, 1985), "Methods of State Variety Testing of Agricultural Crops" (1985, 1989), "Methods of Agrochemical, Agrophysical Soil Research of Central Asia" (1988).

Experiments will be conducted in 2025 on an area of 1092 m<sup>2</sup> of the experimental field of the scientific elite state farm of SHITI. The influence of the experimental strains of nodule bacteria Br.sp-1, Br.sp-2 and the biopreparation "Bioquvvat" on the formation of nodules on the roots of the "Barqaror" mung bean variety was studied.

Seeds of the early-ripening mung bean variety "Barqaror" were also sown as a control variant with nitrogen fertilizers in pure form against a background of N<sub>50</sub> P<sub>100</sub> K<sub>70</sub> without inoculation with nodule bacteria. At the same time, an average of 33.9 tubers formed on each plant. (Table 1)

**Table 1. Nodule formation during inoculation of "stable" seeds**

Option	Variety name	Return number	Average number of tubers per repeat	Average number of nodules
Option 1 Control	"Stable"	Repeat 1	26.4.	33.9
		Repetition 2	36.2.	
		3rd repetition	40.8	
		4th repetition	32.2.	
Option 2 "Biopower"	"Stable"	1st repetition	73.2.	66.2.
		2nd repetition	66.8	
		3rd repetition	45.	
		4th repetition	79.8	
Option 3 "Br.sp-1"	"Stable"	1st repetition	61.8	50.9
		2nd repetition	45.6.	
		3rd repetition	51.6	
		4th repetition	44.4.	
Option 4 "Br.sp-2"	"Stable"	1st repetition	75.6	53.
		2nd repetition	41.8	

		3rd repetition	48.	
		4th repetition	46.4.	

Symbiosis is effective if combined with intensive nitrogen fixation, which leads to a significant increase in plant weight and nitrogen content. The plant forms a good symbiotic relationship with nodule bacteria corresponding to its root sensitivity. In this case, many nodules form in the plant's roots, and nitrogen fixation is high. As a result, the plant's nitrogen needs are met. Based on this, in the experiment, mung bean seeds were inoculated with nitrogen-fixing bacteria.

The highest indicator for the "Barqaror" variety was observed in the 2nd variant of the experiment when sowing mung bean seeds inoculated with the biopreparation "Bioquvvat." At the same time, an average of 66.2 tubers formed on each plant. (Table 1). The lowest indicator was observed in the control variant - 33.9 tubers were formed.

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