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## **Comparison of efficiency of polyvinylpyrrolidone and trehalose as protectors of rhizobia on inoculated soybean seeds**

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### **Abstract**

Inoculation of seeds of legumes with preparations of nodule bacteria is used to form effective nitrogen-fixing legume-rhizobial symbiosis on plant roots. As a result, the legume plant is able to meet its nitrogen demand. For effective seed inoculation, it is necessary to get rhizobia on each seed. To improve adhesion, various adhesives and film-forming agents are added to the solution with the inoculant. At the same time, there is a lack of data on the effect of adhesives on rhizobia. The aim of the work was to compare the effectiveness of polyvinylpyrrolidone and trehalose as a protector of nodule bacteria *Bradyrhizobium japonicum* strain 640 on inoculated seeds of soybean variety Prudence. Determination of the number of viable bacteria was carried out by plating a series of dilutions of washes from seeds on plates with agar culture medium and then counting the number of typical bacterial colonies. According to the results of the study, a 9-10% solution of polyvinylpyrrolidone was determined as an effective polymer protector of rhizobia, ensuring the survival of at least 50 thousand cells per 1 seed 144 hours after inoculation. A solution of trehalose at 20% concentration also ensures the preservation of nodule bacteria. Trehalose protects rhizobia more effectively in the early stages after seed treatment (8-72 hours).

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