The Collection, Evaluation and Selection of *Rhizobium* Strains of Aegean Region

Research Area	Sustainable Soil and Water Management
Research Program	Plant Nutrition
Executive Institute	International Agricultural Research and Training Center
Supporting Institute/s	TAGEM
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Project Summary:

This project aims to increase legume yield which takes an important part in the region agriculture by inoculating bacteria and to contribute to agricultural sustainability by reducing nitrogen fertilizing. The project will be carried out in order to collect, isolate and select bacteria strains and to determine the most efficient ones in nitrogen fixation by referring to the symbiotic relationship between rhizobium and the legumes cultivated in the region.

Competition with the local bacteria strains is one of the important factors affecting nitrogen fixation. The local strains are more dominant in the nature, but they are not efficient and they affect the nitrogen fixation negatively. *Rhizobium* bacteria should be isolated from the region in which it will be used. In the research nodules in the legumes from different ecological regions representing Aegean region will be collected and *Rhizobium* spp. strains will be isolated. The efficiency and productivity of the *Rhizobium* strains isolated from the region will be researched under greenhouse and field conditions.

Biological nitrogen fixation depends on the availability of the efficient *Rhizobium* strains in the media. Availability and effectiveness of the *Rhizobium* strains is closely related to environmental and climatic factors to be at optimum levels for the bacteria. *Rhizobium* bacteria strain specific to the legume plant should be added into the media to increase the biological nitrogen fixation. The main objective of this project is to determine and to produce the most effective and productive *Rhizobium* bacteria strains that will be used in legume seed inoculation. It is aimed to reduce nitrogen fertilization by increasing the biological nitrogen fixation and to contribute to the agricultural sustainability.

The most important riches of the world will be soil and water resources in the future. It is quite important for conservation of these natural resources to use nitrogen well balanced and sufficiently. Especially in order to preserve soil quality and health it is necessary to meet the plant nutrition demands through natural ways. Sustainable and quality legume production with low cost is the main aim of the project.

Key Words: Legume, *Rhizobium* spp., inoculation, effectiveness, nitrogen