



# KrishiKosh (कृषिकोश)

(/) An Institutional Repository of Indian National Agricultural Research System



(/)

[Advanced Search \(/advanced-search\)](/advanced-search)

[Krishikosh \(/\)](#) / [Birsa Agricultural University, Ranchi \(/handle/1/93542\)](#) / [Thesis \(/handle/1/93550\)](#)

Please use this identifier to cite or link to this item: <http://krishikosh.egranth.ac.in/handle/1/5810024594>

Authors: Haider, Ashrafi (/browse?type=author&value=Haider%2C+Ashrafi)

Advisor: Dubey, Himanshu (/browse?type=author&value=Dubey%2C+Himanshu)

Title: Analysis of proteins for various Rhizobium isolates of *Cajanus cajan* [L.] Millsp. collected from various pH ranges of soil samples of Jharkhand

Publisher: Birsa Agricultural University, Kanke, Ranchi, Jharkhand

Language: en\_US

Type: Thesis

Pages: 101

Agrotags: null

Keywords: Analysis of proteins for various Rhizobium isolates of *Cajanus cajan* [L.] Millsp. collected from various pH ranges of soil samples of Jharkhand

**Abstract:** Pigeonpea, as a legume, improves soil fertility through biological nitrogen fixation. It is reported to contribute approximately 40 kg N ha<sup>-1</sup>. Soil acidity is one of the most serious problems affecting growth of rhizobia in the soil of Jharkhand. One of the most important factors that affect the efficiency of symbiosis between rhizobia and plants is the pH of the soil in which they interact. The host plant to any symbiotic Rhizobium appears to be the limiting factor for growth in extreme pH, as most legumes require a neutral or slightly acidic soil for growth especially when they depend on symbiotic nitrogen fixation. Every bacterium has its own optimum conditions under which it grows at its best. Different species of Rhizobium display varying degrees of pH resistance as measured by their ability to grow (not just survive). Some inducible systems raise the internal pH of the bacterium in order to counter any intruding acidic molecules or protonated species. The aim of present study is to perform protein profiling of Rhizobium isolates of leguminous plants collected from acidic soil regimes of Jharkhand by two-dimensional gel electrophoresis. For this *Cajanus cajan* (Arhar) plant has been taken as a model system. Growth curves were plotted for all the isolates to distinguish the bacterium into fast and slow growers. In our analysis optimization of experimental setup for two-dimensional electrophoresis was done to obtain good quality 2D gels and obtained spots which are found to be unique. To cope with this abiotic stress, proteins play a major role. Therefore to study the stress proteins of rhizobia by two-dimensional electrophoresis, protein profiles under different pH ranges were compared. Through studying the proteome of Rhizobium in acidic soil condition, the response of the isolates towards acidity of soil is being analyzed. At the molecular level, we hypothesize that the protein changes observed on twodimensional electrophoresis in response to different pH reflected the molecular adaptation mechanism taking place in progress in Arhar to combat and recover in response to abiotic stress such as acidic soil.

**Description:** Analysis of proteins for various Rhizobium isolates of *Cajanus cajan* [L.] Millsp. collected from various pH ranges of soil samples of Jharkhand

**Subject:** Biotechnology

**Theme:** Analysis of proteins for various Rhizobium isolates of *Cajanus cajan* [L.] Millsp. collected from various pH ranges of soil samples of Jharkhand

**These Type:** M.Sc

**Issue Date:** 2011

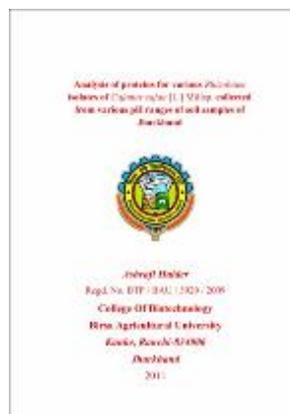
**Appears in Collections:** Thesis (/handle/1/93550)

Files in This Item:

File	Description	Size	Format
------	-------------	------	--------

1345 Ashrafi Haider.pdf

4.07 MB Adobe PDF



[View/Open \(/displaybitstream?handle=1/5810024594\)](/displaybitstream?handle=1/5810024594)

[Show full item record \(/handle/1/5810024594?mode=full\)](/handle/1/5810024594?mode=full)

 [\(/handle/1/5810024594/statistics\)](/handle/1/5810024594/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.