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Abstract:	Out of several gases present in the atmosphere nitrogen share the major portion (about 71%) and is found in the di-nitrogen (an inert) form. It is the component of many bio-molecules required for the growth and development of all organisms. Most of the eukaryotes are incapable of utilizing nitrogen directly from the environment; only a certain group of prokaryotes are genetically feasible to fix the atmospheric nitrogen into the biologically useful form like ammonia which is further utilized by eukaryotes. Rhizobium a gram negative bacteria associates symbiotically with legume crop and are genetically feasible in reducing (fixing) atmospheric nitrogen for leguminous crop. Legumes in turn provide shelter and energy to them. The specificity of Rhizobia to inoculate legume falls either in broad range host specificity to narrow range host specificity. Several abiotic stresses adversely influence the activity of Rhizobium. Soil pH is one of the stresses which hamper the symbiotic association between the two. As per the reports soil pH in the range of 6.5-7.0 are considered best in the case of leguminous crop for the optimal activity of the bacteria. Soil pH below or above this range minimizes the Biological Nitrogen Fixation (BNF) through Rhizobia. The aim of my work is Protein profiling of Rhizobium isolates of soybean from different soil regimes and identification of genes for soil tolerance by MALDI-TOF/TOF analysis has been performed to compare the protein profile of 2 isolates. Rhizobium provides the major source of fixed nitrogen in agricultural soil. 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 find that the twodimensional gel analysis reveals a host of proteins which are found to be up-regulated or downregulated in response to different pH conditions. We hypothesize that the protein changes observed on two-dimensional electrophoresis in response to different pH of acidic soil reflected the molecular adaptation mechanism taking place in progress in soybean to combat and recover in response to abiotic stress such as acidic soil.

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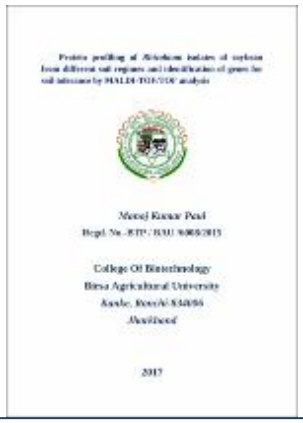

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