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Abstract:	Legumes are major sources of protein and energy for both humans and domestic animals, and the legume-Rhizobium symbiosis is now the most widely managed agricultural system for biological nitrogen fixation. A large portion of the potentially arable land in many regions of the world is acidic, and soil acidity is frequently a major constraint for the cultivation of leguminous crops. Understanding the behavior of Rhizobium in acid soils is therefore important for successful nodulation, development of the nitrogen-fixing symbiosis, and ultimately enhancing crop yield. Soil acidity is widespread globally, accounting for about 40% of total arable soils. The optimum soil pH for plant production is one that is slightly acidic, at this pH soil microorganisms are most active and plant nutrients are readily available. At extremes of high (alkaline) and low (acid) pH, this delicate balance is disturbed and plant nutrients that were in adequate supply can become either deficient or toxic to plant growth. Some essential nutrients such as phosphorous, calcium, magnesium, and molybdenum become unavailable if the soil pH becomes too acid. Acidic conditions will result in a lowering of plant production in farming systems. This will result in reduced profitability and an increased reliance on fertilizers to sustain any form of productive agriculture. The present study focuses on the proteomic analysis of Rhizobium isolates of Cajanus cajan [L.] Millsp. This objective was achieved by performing the Two-Dimensional Electrophoresis (2DE) using fourteen (14) different isolates of Rhizobium collected from various pH regimes of the state of Jharkhand. By the aid of growth curves plotted for all the isolates of Rhizobium, isolates were characterized as slow and fast grower under the acidic regime. 2D protocol was optimized to get good quality gels. Well demarcated, reproducible unique protein spots were observed in the gels by 2D electrophoresis.
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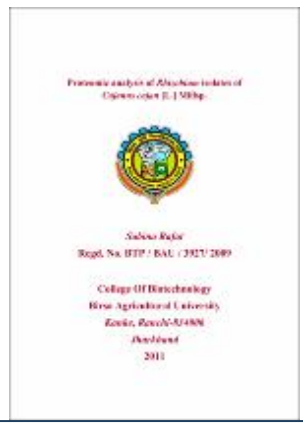

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