

Screening of Phosphate Solubilizing Bacteria from Sandy Soil of Jharkhand

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Abstract—Phosphorus (P) is an element that is widely distributed in nature and occurs, together with nitrogen (N) and potassium (K), as a primary constituent of plant and animal life. Phosphorus plays a series of functions in the plant metabolism and is one of the essential nutrients required for plant growth and development. It has key function in structural nature of macromolecules such as nucleic acids and energy transfer in metabolic pathways of biosynthesis and degradation. Unlike nitrate and sulphate, phosphate is not reduced in plants but remains in its highest oxidized form. A greater part of soil phosphorus, approximately 95-99% is present in the form of insoluble phosphates and cannot be utilized by the plants. Through various studies this has been seen that improvement of soil fertility requires a diligent management of available natural resources for maintaining the productive capacity of life support processes of soil. Therefore a broader study of plant-microbe interactions can prove to be helpful to achieve higher plant productivity. Many microorganisms isolated from the different ecosystems are able to dissolve insoluble phosphates (phosphate solubilizing microorganisms; PSMs) in liquid cultivation conditions and thus enhances productivity of crop plants. Phosphate solubilizing micro-organisms (PSMs) are a very important category of plant growth promoting micro-organisms (PGPMs). PGPMs are a group of micro-organisms exhibiting direct or indirect beneficial effect on plant development by inhabiting its rhizosphere. The present work discusses the effectiveness of some of the phosphate solubilizing bacteria isolated from sandy soil of Jharkhand towards solubilization of fixed phosphates.