



ROLE OF BIOFERTILIZERS IN PLANT GROWTH AND SOIL HEALTH

Lovepreet Kaur and Manpreet Kour
Assiatant Professor
Chandigarh University
India.

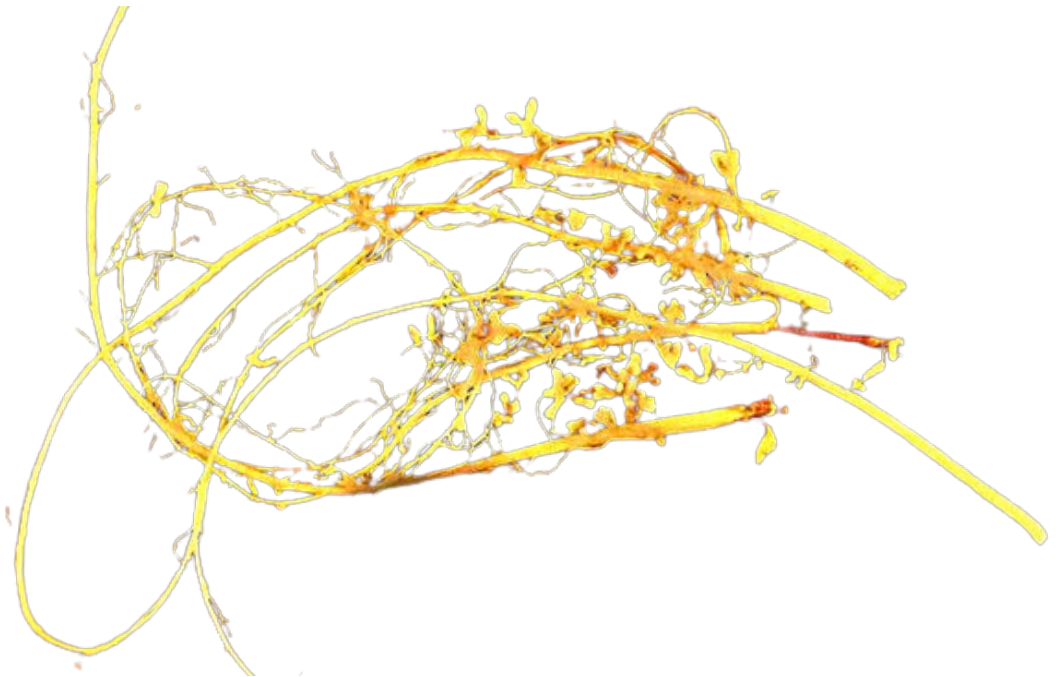
Biofertilizers are likely called bio inoculants as they are the preparations containing living or latent cells of microorganisms that facilitate crop plants' uptake of nutrients by their interactions within the rhizosphere once applied through seed or soil. It accelerates bound microorganism processes within the soil that augment the extent of the convenience of nutrients in a very type simply assimilated by plants. Biofertilizers provide several other advantages, including being a cost-effective, environmentally friendly, and renewable supply of plant nutrients, making them an important component of integrated nutrient management. We cannot yet claim bio-inoculants as a viable alternative to chemical fertilizers, but scientific awareness of the subject will pave the road for their proper application and reaping of full benefits in the near future. In addition to this on a global scale, recently published works on biofertilizers state the varied role of bio inoculants viz., other than nutrient transformations in different crops. To mention a few, an increase in root growth has been observed in wheat due to the inoculation of bioinoculant consortia.

*Globally,
an
estimated
193 x 106
tons of N
is fixed
through
biological
N fixation
each year*

**Agronomy Fact
Sheet Series (Fact
Sheet 39),
Cornell University,
USA**

Role of Biofertilizer in the Growth/Production of the crop

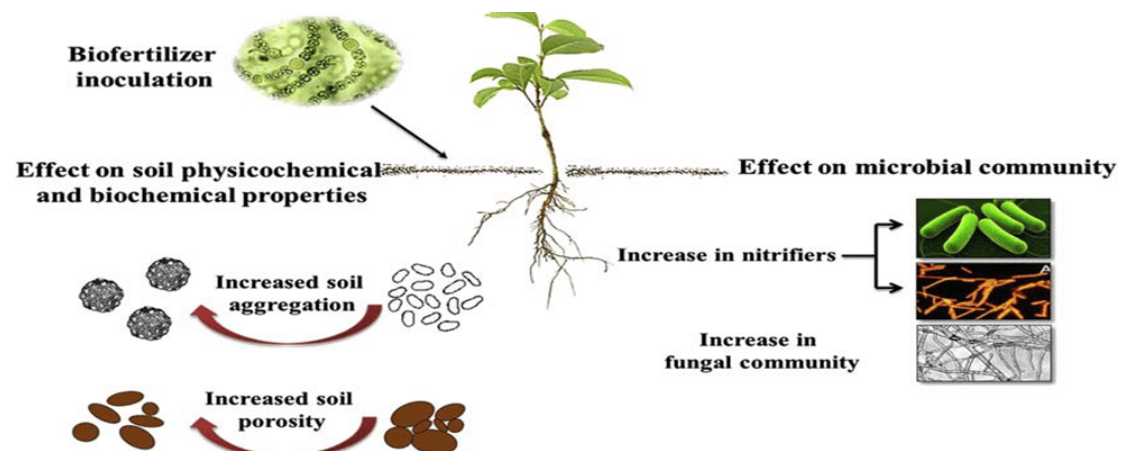
Biofertilizer could be utilized as a nutrient source or to improve soil microbial science by keeping up with natural product yield also, quality and advancing healthfully provided plants with lower creation costs. Nitrogen-fixing microorganisms assume a significant part in expanding yield by changing over climatic nitrogen into natural structures usable by plants. Rhizobia are cooperatively related to vegetables and nitrogen obsession happens inside root or stem knobs where the bacterium dwells.



Rhizobium immunization serves to further develop nodulation, and plant development and produces higher grain yield by 10-15% under cultivated conditions than a harvest that has not been immunized. The most probable contender for organic N obsession in rice is types of *Alcaligenes*, *Azospirillum*, *Bacillus*, *Herbaspirillum*, *Klebsiella*, *Pseudomonas* and *Rhizobium*.

Nitrogen fixation is the process by which nitrogen in the air (N_2) is changed (converted) into ammonia (NH_3)

Azotobacter and Azospirillum are the two generally significant non-harmonious N-fixing microorganisms in non-leguminous yields. These N-fixing microorganisms might be free-living or normally related to rice plants. Underfitting conditions, Azotobacter and Azospirillum can upgrade plant improvement and advance the yield of a few agricultural crops, significant yields in various soils and climatic areas Azotobacter plays a significant job in the nitrogen cycle in nature as it has an assortment of metabolic capacities.

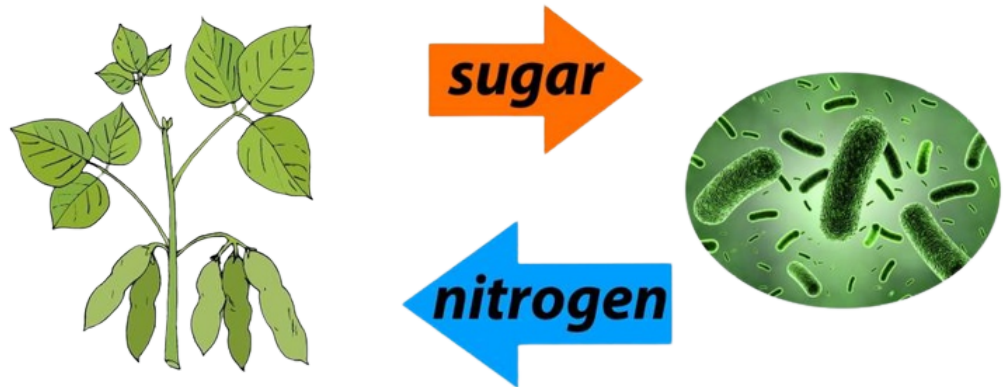


Other than assuming a part in nitrogen obsession, Azotobacter has the ability to integrate and secretes extensive measures of naturally dynamic substances like nutrients like thiamine and riboflavin, nicotinic corrosive, pantothenic corrosive, biotin, heteroxins, gibberellins, discharge of alkali in the rhizosphere within the sight of root exudates, which makes a difference in adjustment of supplement take-up by the plants.

Bio-fertilizers improve soil texture, structure, supply of nutrients, water holding capacity and proliferate useful soil micro-organisms

Roles of Biofertilizer in improving the health of the soil

Biofertilizers are useful for replenishing polluted soils. Biofertilizers give nutrients and microorganisms that may not be available in soil or that are of less amount. They lessen the amount of expendable squanders. Biofertilizers lessen the natural effect of compound fertilizers particularly on soil and water. They help to increment the nature of the dirt by giving supplements and a normal climate in the rhizosphere. It will help to diminish Nutrition overspill or draining, alongside crop buildup the executives. Microbial inoculants will likewise help to diminish the sums of synthetic fertilizers used and increment in the utilization proficiency of the applied composts.



Biofertilizers give insurance to plants by emitting anti-infection agents which are powerful against many plant microorganisms. Biofertilizers have dependable impacts because of their sluggish supplement discharge. The nutrients from biofertilizers are delivered to plants gradually and consistently for more than one season. Consequently, a long haul utilization of biofertilizer prompts the development of nutrients in the soil along these lines expanding the general soil richness.