

Research & Reviews: Journal of Agriculture and Allied Sciences

Bio-fertilizers: Demand of Agriculture

Nitin Panwar

Department of Biotechnology, Graphic Era University, Dehradun, Uttarakhand, India

Review Article

Received date: 23/04/2015
Accepted date: 25/04/2015
Published date: 30/04/2015

*For Correspondence

Nitin Panwar, Department of Biotechnology,
Graphic Era University, Dehradun, Uttarakhand,
India, Tel: +91 9701014770

E-mail: nitz.panwar@yahoo.com

Keywords: Agriculture; Bio-fertilizer; Nitrogen fixation

ABSTRACT

Bio-fertilizer contains microorganisms which advance the sufficient supply of supplements to the host plants and guarantee their legitimate improvement of development and regulation in their physiology. Bio-Fertilizers are eco-accommodating, one of the best current tool for agriculture and are utilized to enhance the fertility, quality and nature of the soil.

INTRODUCTION

The overabundance employments of Chemical fertilizers in agriculture are costly with unfriendly impacts on physio-chemical properties of soils ^[1-3]. Therefore, in the late years a few natural fertilizers have been presented that go about as characteristic stimulators for plant development and improvement. The learning of such characteristic stimulator or microbial inoculums has long history begun with society of little scale fertilizer creation and goes from era to era of farming ^[4-7].

A particular gathering of this sort of composts incorporates items taking into account plant development advancing microorganisms named bio-fertilizer or 'microbial inoculants' that are planning containing live or inactive cells of effective strains of nitrogen altering, phosphate solubilizing or cellulolytic microorganisms ^[8-13].

Bio-fertilizers are critical segments of incorporated supplements administration in soil, while they assume key part in gainfulness and supportability of soil. With each passing days, these bio-fertilizer supplanting concoction composts because of expense successfully, ecofriendly and renewable wellspring of plant supplements. Bio-fertilizers are known to play various essential parts in soil richness, crop benefit and creation in farming as they are eco amicable and cannot at any expense supplant concoction manures that are crucial for getting greatest product yields ^[14-18]. A portion of the essential Bio-fertilizers and their parts of in farming are:

Rhizobium - vegetable beneficial interaction

Microscopic organisms of the variety Rhizobium assume a critical part in farming by impelling nitrogen-settling knobs on the bases of vegetables, for example, peas, beans, clover and hay. This beneficial interaction can calm the prerequisites for included nitrogenous manure amid the development of leguminous harvests ^[19].

Azotobacter

Azotobacter has assumed a useful part in agribusiness as a bio manure for oats and non-vegetable products, other than nitrogen obsession azotobacter produces development promoters, auxin, gibberellins, cytokinin siderophores ^[20].

Azospirillum

Azospirillum's plant root association is highlighted: common territory, plant root communication, nitrogen obsession and biosynthesis of plant development hormones. Each of these perspectives is managed in a near manner ^[21-23].

Cyanobacteria

Cyanobacteria fix nitrogen, which is a crucial supplement for supporting plant development. The cyanobacteria tap the sun's energy aimed at photosynthesis to alter nitrogen from the air and transform it into a product which plants can utilize ^[24,25].

Conclusion and Future Prospects

Bio-fertilizers lead to soil improvement and are perfect with long haul manageability. Further they are ecofriendly and represent no risk to nature can be supplanted with compound composts.

References

1. Elbanna K, Gamal-Eldin H, Abuzaed E Characterization of Egyptian Fluorescent Rhizosphere Pseudomonad Isolates with High Nematicidal Activity against the Plant Parasitic Nematode *Meloidogyne Incognita*. J Biofertil Biopestici (2011) Volume 1, Issue 1.
2. McLeod P, Rashid T Laboratory Toxicity Profile of an Organic Formulation of Spinosad against the Eggplant Flea Beetle, *Epitrix Fuscula Crotch*. J Biofertil Biopestici (2011) Volume 2, Issue 1.
3. Roy-Bolduc A, Hijri M The Use of Mycorrhizae to Enhance Phosphorus Uptake: A Way Out the Phosphorus Crisis. J Biofertil Biopestici (2011) Volume 2, Issue 1.
4. Zamani S, Sendi JJ, Ghadamyari M Effect of *Artemisia Annu L.* (Asterales: Asteraceae) Essential Oil on Mortality, Development, Reproduction and Energy Reserves of *Plodia interpunctella* (Hübner). (Lepidoptera: Pyralidae). J Biofertil Biopestici (2011) Volume 2, Issue 1.
5. Densilin DM, Srinivasan S, Manju P, Sudha S Effect of Individual and Combined Application of Biofertilizers, Inorganic Fertilizer and Vermicompost on the Biochemical Constituents of Chilli (Ns - 1701). J Biofertil Biopestici (2011) Volume 2, Issue 2.
6. EL-Shenawy NS, El-Ahmary B, Al-Eisa RA Mitigating Effect of Ginger against Oxidative Stress Induced by Atrazine Herbicides in Mice Liver and Kidney. J Biofertil Biopestici (2011) Volume 2, Issue 2.
7. Begum N, Sharma B, Pandey RS Toxicity Potential and Anti AchE Activity of Some Plant Extracts in *Musca domestica*. J Biofertil Biopestici (2011) Volume 2, Issue 2.
8. Maiyappan S, Amalraj ELD, Santhosh A, Peter AJ Isolation, Evaluation and Formulation of Selected Microbial Consortia for Sustainable Agriculture. J Biofertil Biopestici (2010) Volume 2, Issue 2.
9. Agrawal S, Pathak RK Response of Phosphate Solubilizing Microorganism on Quality of Wheat (*Triticum Aestivum L.*) Plant Grown Conventionally in Temperate Climate. J Biofertil Biopestici (2010) Volume 2, Issue 3.
10. Maiti D Improving Activity of Native Arbuscular Mycorrhizal Fungi (AMF) for Mycorrhizal Benefits in Agriculture: Status and Prospect. J Biofertil Biopestici (2011) Volume 2, Issue 3.
11. Pandit NP, Ahmad N, Maheshwari SK Vermicomposting Biotechnology: An Eco- Loving Approach for Recycling of Solid Organic Wastes into Valuable Biofertilizers. J Biofertil Biopestici (2012) Volume 3, Issue 1.
12. Singh A, Khare A, Singh AP Use of Vegetable Oils as Biopesticide in Grain Protection- A Review. J Biofertil Biopestici (2012) Volume 3, Issue 1.
13. Alarcón A, Hernández-Cuevas LV, Ferrera-Cerrato R, Franco-Ramírez A Diversity and Agricultural Applications of Arbuscular Mycorrhizal Fungi in Mexico. J Biofertil Biopestici (2012) Volume 3, Issue 1.
14. Kumar S Biopesticides: A Need for Food and Environmental Safety. J Biofertil Biopestici (2012) Volume 3, Issue 4.
15. Balachandar D Biofertilizers- What Next? J Biofertil Biopestici (2012) Volume 3, Issue 4.
16. Pindi PK Liquid Microbial Consortium- A Potential Tool for Sustainable Soil Health. J Biofertil Biopestici (2012) Volume 3, Issue 3.
17. Brar SK, Kaur S, Dhillon GS, Verma M Biopesticides - Road to Agricultural Recovery. J Biofert Biopest (2012) Volume 3, Issue 3.
18. Praveen Kumar G, Desai S, Leo Daniel Amalraj E, Mir Hassan Ahmed SK, Reddy G Plant Growth Promoting *Pseudomonas* spp. from Diverse Agro-Ecosystems of India for *Sorghum bicolor L.* J Biofert Biopest (2012) Volume 3, Issue 3.

19. Al-shannaf HM, Mead HM, Hassan Sabry AK Toxic and Biochemical Effects of Some Bioinsecticides and Igrs on American Bollworm, *Helicoverpa armigera* (hüb.) (noctuidae: lepidoptera) in Cotton Fields. J Biofertil Biopestici (2012) Volume 3, Issue 2.
20. Vinale F Biopesticides and Biofertilizers Based on Fungal Secondary Metabolites. J Biofertil Biopestici (2014) Volume 5, Issue 1.
21. Machiavelli, Khurana SMP An Inoculating Potential of Phosphate-Solubilising Microbes as Biofertilizers. J Biofertil Biopestici (2013) Volume 4, Issue 1.
22. Raja N Biopesticides and Biofertilizers: Ecofriendly Sources for Sustainable Agriculture. J Biofertil Biopestici (2013) Volume 4, Issue 1.
23. Paul N, Cruz PC, Aguilar EA, Badayos RB, Hafele S Evaluation of Biofertilizers in Cultured Rice. J Biofertil Biopestici (2013) Volume 4, Issue 1.
24. Messele B, Pant LM Effects of Inoculation of Sinorhizobium ciceri and Phosphate Solubilizing Bacteria on Nodulation, Yield and Nitrogen and Phosphorus Uptake of Chickpea (*Cicer arietinum* L.) in Shoa Robit Area. J Biofertil Biopestici (2012) Volume 3, Issue 5.
25. Raja N Botanicals: Sources for Eco-Friendly Biopesticides. J Biofertil Biopestici (2014) Volume 5, Issue 1.