Biofertilizers

Biofertilizers are natural or organic substances that contain living microorganisms, such as bacteria, fungi, and algae, which help enhance soil fertility and plant nutrition. When applied to the soil, biofertilizers establish a symbiotic relationship with plants, promoting nutrient uptake, improving soil structure, and increasing nutrient availability.

Please check "Exposition" tab for various Biofertilizers.

Our Biofertilizer Formulations

1. **Iron Solubilizing Bacteria**
2. **Rhizosphere Enhancing Bacteria**
3. **Manganese Solubilizing Bacteria**
4. **Nitrogen Fixing Bacteria**
5. **NPK Solubilizing Bacteria**
6. **Phosphorous Solubilizing Bacteria**
7. **Plant Growth Promoting Microbial Consortium**
8. **Potash Mobilizing Bacteria**
9. **Potash Solubilizing Bacteria**
10. **Silicate Solubilizing Bacteria**
11. **Sulphur Mobilizing Bacteria**
12. **Sulphur Solubilizing Bacteria**
13. **Zinc Solubilizing Bacteria**

> **Explore our Plant Probiotics section, featuring a comprehensive range of crop-specific probiotic solutions for over 140+ types of crops. Our innovative plant growth promoters offer superior performance and enhanced yield compared to traditional biofertilizers, making them ideal for sustainable agriculture and organic farming. Discover how our tailored probiotics can support soil health and boost the growth of various crops, from fruits and vegetables to grains and ornamentals, ensuring optimal plant nutrition and resilience against environmental stresses.**

The microorganisms present in our Biofertilizer formulations contribute to nutrient cycling by fixing atmospheric nitrogen, solubilizing phosphates, and enhancing the release of minerals

from organic matter. By reducing the reliance on synthetic chemical fertilizers, biofertilizers support sustainable agriculture practices, improve soil health, and contribute to more environmentally friendly farming methods.

A sample list of strains which we provide under various Biofertilizers formulations are listed below:

1. Acetobacter diazotrophicus
2. Acidovorax spp.
3. Actinobacteria spp.
4. Achromobacter spp.
5. Agrobacterium allii
6. Agrobacterium larrymoorei
7. Agrobacterium radiobacter
8. Agrobacterium rhizogenes
9. Agrobacterium rubi
10. Agrobacterium tumefaciens
11. Agrobacterium vitis
12. Alcaligenes spp.
13. Azohydromonas spp.
14. Azorhizobium caulinodans
15. Azospirillum amazonense
16. Azospirillum brasilense
17. Azospirillum doebereinerae
18. Azospirillum halopraeferens
19. Azospirillum irakense
20. Azospirillum lipoferum
21. Azospirillum rugosum
22. Azospirillum thiophilum
23. Azospirillum zeae
24. Bacillus brevis
25. Bacillus circulans
26. Bacillus coagulans
27. Bacillus firmus
28. Bacillus licheniformis
29. Bacillus lentimorbus
30. Bacillus licheniformis
31. Bacillus megaterium
32. Bacillus polymyxa
33. Bacillus pumilus
34. Bacillus subtilis
35. Brevibacterium spp.
36. Bradyrhizobium japonicum
37. Bradyrhizobium sp.
38. Burkholderia spp.

39. Citrobacter spp.
40. Clostridium acetobutylicum
41. Clostridium beijerinckii
42. Clostridium pasteurianum
43. Corynebacterium spp.
44. Clostridium spp.
45. Cupriavidus spp.
46. Enterobacter spp.
47. Escherichia spp.
48. Frankia spp.
49. Flavobacterium spp.
50. Herbaspirillum spp.
51. Klebsiella spp.
52. Leclercia spp.
53. Leifsonia spp.
54. Lysinibacillus spp.
55. Mesorhizobium amorphae
56. Mesorhizobium ciceri
57. Mesorhizobium huakuii
58. Mesorhizobium loti
59. Mesorhizobium mediterraneum
60. Mesorhizobium septentrionale
61. Mesorhizobium spp.
62. Methylobacterium spp.
63. Micrococcus spp.
64. Mycobacterium spp.
65. Nitrobacter spp.
66. Nitrospira spp.
67. Nitrosomonas spp.
68. Obesumbacterium spp.
69. Pantoea spp.
70. Paenibacillus spp.
71. Photorhabdus spp.
72. Phyllobacterium spp.
73. Pseudomonas aeruginosa
74. Pseudomonas chlororaphis
75. Pseudomonas fluorescens
76. Pseudomonas maltophilia
77. Pseudomonas mendocina
78. Pseudomonas putida
79. Pseudomonas stutzeri
80. Pseudomonas syringae
81. Pseudomonas trivialis
82. Ralstonia spp.
83. Rhizobium leguminosarum
84. Rhizobium spp.

85. Rhodobacter capsulatus
86. Rhodococcus fascians
87. Rhodococcus spp.
88. Rhodopseudomonas palustris
89. Rhodospirillum rubrum
90. Serratia spp.
91. Sinorhizobium americanum
92. Sinorhizobium arboris
93. Sinorhizobium fredii
94. Sinorhizobium kostiense
95. Sinorhizobium medicae
96. Sinorhizobium meliloti
97. Sinorhizobium saheli
98. Sinorhizobium terangae
99. Shewanella spp.
100. Sphingomonas spp.
101. Stenotrophomonas spp.
102. Thiobacillus spp.
103. Thiopseudomonas spp.
104. Xanthobacter spp.
105. Yersinia spp.
106. Zymomonas spp.

Future Developments of Biofertilizers at NTHRYS OPC PVT LTD (NOPC)

Precision Formulations

NOPC Researchers are working on tailoring biofertilizer formulations to specific crops and soil types. This precision approach ensures that plants receive the exact nutrients they need for optimal growth, reducing wastage and environmental impact.

Synthetic Biology

Advances in synthetic biology enable the engineering of beneficial microorganisms to enhance their nutrient-fixing abilities. These genetically modified organisms can be designed to thrive in diverse conditions and provide targeted nutrient delivery. NOPC Team has already tailor made certain strains under this objective and the strains will serve agriculture community in near future.

Microbiome Studies

In-depth exploration of the soil microbiome offers insights into complex microbial interactions that influence plant health. Harnessing these insights could lead to the development of custom biofertilizer blends that promote beneficial microbial communities in the soil. NOPC Team is implimenting these insights to standardize various formulations.

Nanotechnology Integration

Nanoparticles are being explored for their potential to enhance biofertilizer efficiency. Nanotechnology can improve nutrient absorption, protect microorganisms from environmental stressors, and enable controlled nutrient release. Biofertilizer formulations with nanotechnology are in pipeline to hit the market by 2024 from NOPC Team.

Climate-Resilient Formulations

Climate change impacts soil health and nutrient availability. Biofertilizers designed to withstand changing climatic conditions, ensuring consistent nutrient supply even in challenging environments is one of the active research at NOPC.

Biostimulants Combination

Biofertilizers might be combined with biostimulants to enhance plant growth and stress tolerance. This synergistic approach improve nutrient uptake and overall crop resilience. A whole new set of Biostimulant + Biofertilizers product line are in pipeline to be released by 2024.

Digital Agriculture Integration

Biofertilizers could be integrated into digital agriculture platforms, where real-time data informs nutrient application. This data-driven approach optimizes nutrient delivery, minimizing overuse and potential environmental harm. By 2023 Decemeber NOPC Team will be releasing its first IoT device for this Digital Agriculture Integration approach.

Regulatory Frameworks

As biofertilizer adoption grows, regulatory frameworks ensuring their safety and efficacy will likely evolve. Standards for production, labeling, and quality control may emerge to guide the industry. NOPC Team has standfardized a platform this regulatory frameworks for selected clientele.

Waste Recycling

Biofertilizers could play a role in recycling organic waste and converting it into valuable nutrient sources. This aligns with the circular economy concept, reducing waste and supporting sustainable agriculture. Seperate list of biofertilizers are available for waste recycling at NOPC.

Global Adoption

The increasing demand for sustainable agriculture practices worldwide could lead to greater adoption of biofertilizers. This demand drove research and innovation to make biofertilizers accessible and effective for diverse agricultural systems. By 2024 end NOPC Team will make its biofertilizers available for global crops cultivated in 190+ nations.

Environmental Friendly Nature of Biofertilizers

Biofertilizers are a class of fertilizers derived from natural sources that contain living microorganisms. They offer several environmental benefits compared to conventional chemical fertilizers, contributing to sustainable agricultural practices and reduced environmental impact. Here are some key points highlighting the environmentally friendly nature of biofertilizers:

1. Reduced Chemical Usage

Biofertilizers significantly reduce the need for synthetic chemical fertilizers. This helps minimize the application of harmful chemicals that can accumulate in soil and water bodies, causing pollution and disrupting ecosystems.

2. Nutrient Efficiency

Biofertilizers enhance nutrient availability to plants by fixing atmospheric nitrogen, solubilizing phosphorus, and producing growth-promoting substances. This targeted nutrient delivery improves nutrient uptake efficiency and reduces excess nutrient runoff into waterways, which can lead to nutrient pollution and eutrophication.

3. Improved Soil Health

Biofertilizers enhance soil structure, texture, and fertility. They promote the growth of beneficial microorganisms in the soil, which contribute to nutrient cycling, organic matter decomposition,

and overall soil health. Healthy soils support better plant growth and water retention.

4. Non-Toxic and Safe

Biofertilizers are biologically derived and contain naturally occurring microorganisms. They do not pose risks of toxic residue buildup in crops or soil. This makes them safe for farmers, consumers, and the environment, minimizing health hazards associated with chemical fertilizer use.

5. Low Carbon Footprint

The production of biofertilizers typically involves fewer energy-intensive processes compared to chemical fertilizers. This results in a lower carbon footprint and reduced greenhouse gas emissions, contributing to climate change mitigation efforts.

6. Reduced Soil Degradation

Conventional chemical fertilizers can contribute to soil degradation over time due to imbalanced nutrient application. Biofertilizers, by promoting diverse microbial communities and nutrient balance, help maintain soil fertility and structure, reducing the risk of erosion and degradation.

7. Biodegradability

Biofertilizers are biodegradable and break down naturally in the environment. This contrasts with certain chemical fertilizers that can persist in soil and water bodies, causing long-term negative effects on ecosystems.

8. Promoting Biodiversity

Healthy soils foster diverse microbial populations, which play a crucial role in supporting plant health and biodiversity. Biofertilizers contribute to a balanced soil microbiome, supporting a range of organisms that contribute to ecosystem resilience.

9. Water Quality Protection

Biofertilizers help prevent nutrient leaching into groundwater and surface water bodies. Excessive nutrient runoff from chemical fertilizers can lead to water pollution and algal blooms. Biofertilizers controlled nutrient release reduces this risk.

10. Long-Term Sustainability

By improving soil fertility and health, biofertilizers offer a more sustainable and long-term solution to nutrient management. They support the productivity of agricultural lands while minimizing negative environmental impacts.

The environmentally friendly nature of biofertilizers lies in their ability to provide nutrient support to crops while minimizing harm to ecosystems, water bodies, and human health. Their natural origin, targeted nutrient delivery, and promotion of soil health make them an important component of sustainable agriculture practices.

Biofertilizers Images

Biofertilizers Videos

Issued by:
NTHRYS OPC PVT LTD
Ph: +91 - 7093184748
Web: www.nthrys.com
Email: smo@nthrys.com

Last Updated: 01 May 2024 9:08 pm