

Biofertilizers as a Tool for Mitigating Climate Change

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Abstract: *Biofertilizers, derived from beneficial microorganisms, offer a sustainable alternative to chemical fertilizers in agriculture and hold significant promise as a tool for mitigating climate change. This paper reviews the potential of biofertilizers in sequestering carbon, reducing greenhouse gas emissions, and enhancing soil resilience, thereby contributing to climate change mitigation efforts. Through mechanisms such as nitrogen fixation, promotion of plant growth, and stimulation of soil microbial communities, biofertilizers play a crucial role in increasing soil organic carbon content and improving soil health. By reducing the need for synthetic fertilizers and curbing emissions of nitrous oxide and methane, biofertilizers contribute to greenhouse gas emission reduction in agricultural systems. Furthermore, their ability to enhance soil structure, nutrient availability, and water retention capacity bolsters soil resilience to climate change impacts, including extreme weather events. Widespread adoption of biofertilizers not only mitigates environmental pollution but also promotes sustainable agriculture practices, thereby fostering rural livelihoods and food security. Addressing challenges such as limited awareness and variability in efficacy requires coordinated efforts from policymakers, researchers, and agricultural stakeholders. Harnessing the power of biofertilizers can lead to a more sustainable and climate-resilient agricultural system, aligning with global efforts to combat climate change and ensure food security for future generations.*

Keywords: Biofertilizers, Climate change mitigation, Carbon sequestration, Greenhouse gas emissions, Soil health & Sustainable agriculture