

Enhancing Cation-Exchange Capacity of Biochar for Soil Amendment and Global Carbon Sequestration

Applications:

- Carbon sequester
- Soil amendment and fertilizer

Advantages:

- Higher cation exchange capacity
- Offset CO₂ emissions
- Improved soil fertility
- Decreased fertilizer runoff

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Summary:

Technology Description

The invention is a method for increasing cation exchange capacity of biochar fertilizer, which results in:

- Improved soil fertility
- Decreased fertilizer runoff
- Sequestered carbon in soil and subsoil earth layers

The invention provides a process technology that can enhance the cation-exchange capacity of charcoal materials that are produced from pyrolysis of biomass including agricultural and/or forestry waste materials such as cornstovers, wheat straws, rice straws, switchgrass, peanut hulls, and woody plant materials.

Technology Application

The primary applications of this technology are soil amendment and carbon sink. Biochar with enhanced cation exchange capacity will help soil hold on to important nutrients. Biochar also acts as a carbon sink by sequestering carbon. As charcoal is very stable it will be able to keep carbon sequestered for a very long time.

Stage of Development: Proof of Principle

Patent Status: Patent application in progress

Licensing Status: Available for licensing in specific fields of use