Microorganism-enriched biochar: Accelerated greening of salt heaps

Timeline: 06/25 - 08/25
Budget: €11.9k

Startup

- Name: Plantilizer
- Founded: 07//2022
- Tagline: Design & production of fertilizers combined from biochar and microorganisms
- Location: Hannover, Germany

Industry partner

- Name: K+S AG
- Founded: 10/1889
- Tagline: Salt, potash & magnesium producer
- Headquarter: Kassel, Germany

The problem

Salt heaps, byproducts of fertilizer production, pose significant challenges due to costly leachate runoff during rainfall. Vegetating these salt piles to promote water transpiration offers a promising mitigation strategy. However, the top layer - composed of incineration bottom ash - creates an harsh substrate with limited water retention and phosphorus availability, driven by its highly alkaline nature, thereby hindering plant establishment and growth.

The solution

The startup Plantilizer, in partnership with Rhine-Waal University of Applied Sciences, is advancing a novel biochar-based solution tailored for marginal soils. By embedding targeted microorganisms into a cost-effective biochar derived from wastewater treatment plants, the nutrient bioavailability is enhanced and improves the substrate conditions on salt heaps. A controlled greenhouse pot trial will evaluate the efficacy of microorganism-enriched biochar in promoting early-stage plant growth under conditions replicating the salt heap substrate.

Project deliverables

- Kick-off: Start of greenhouse pot trial
- Finalisation: Collection of data
- Data analysis: Understanding the impact of microorganism-enriched biochar

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