Enhancing Carbon Sequestration in Coastal Saline-Alkali Soils Through Exogenous Calcium-Induced Carbonate Formation

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Abstract

Coastal saline-alkali soils, characterized by high salinity and alkalinity, present signi, cant challenges for agriculture and environmental management but of er untapped potential for carbon sequestration. This article explores the use of exogenous calcium-induced carbonate formation as a method to enhance carbon sequestration in these soils. By introducing calcium-containing amendments such as calcium carbonate, calcium chloride, or calcium sulfate, the formation of stable calcium carbonate (CaCO3) is promoted, which efectively captures and stores atmospheric CO2. This process not only contributes to mitigating climate change but also improves soil quality, increases agricultural productivity, and supports ecosystem restoration. The application of exogenous calcium modi, es soil pH, enhances microbial activity, and leads to the precipitation of calcium carbonate. Despite its bene, ts, challenges such as cost, soil variability, and environmental impact must be addressed. Future research should focus on optimizing application al ali Citation: Souza B (2024) Enhancing Carbon Sequestration in Coastal Saline-Alkali Soils Through Exogenous Calcium-Induced Carbonate Formation. J Ecol Toxicol, 8: 242.

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- : e e al ide calci i **T** e l ble f , hich ca **F** ickl eac i h il c f calci ca b **T** e. e a e a ic la l ef l i **F** il i h high ali **F** he e li e igh be le e ec i e [10].
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- : B c \mathcal{P} e $\mathcal{I}_{2}^{\mathcal{P}}$ a heic CO₂ $\mathcal{I}_{2}^{\mathcal{P}}$ able calci cab \mathcal{R} e, hi ehd e al \mathcal{R} e l $\mathcal{I}_{2}^{\mathcal{P}}$ for a charge i iga i \mathcal{R} .
- : I ed il c \Re i \mathbb{P} ca \mathbb{P} he e ai \mathbb{P} fc a alec e, cha al a he a \Re a \mathbb{P} e, hicha ec cial f c a al ec i \mathbb{P} a \mathbb{R} bi di e i.
- :Emaled il fe ili all d ci i ca lead il ea ed ag ic l al ield, idi gec ic be fa e allal f i ca al egi .
 - E ge calci -i ced cab re f ai re a i i g a ach e ra g cab re e ai re a al

ali Palkali il. B le e agi phe pe e ie f he e il a di a li ga ge ed calci a e de e , i i ible i e il ali , i e a e ca b age, a de ec e e a i A e c pe eek e eci e l i f cli a e cha ge i iga i hi i ai e e h d e e e a al able l i e c ea e a i able a de e ille e.

References

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