**“INVESTIGATIGATING THE POTENTIAL OF CARBON SEQUESTRATION IN DIFFERENT ECOSYSTEM SOILS AND ITS ENHANCEMENT STRATEGIES.”**

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**Abstract:**

Soil plays a significant role in controlling the global carbon cycle. In response to growing concern about climate change mainly due to the high concentration of CO2, carbon sequestration offers a solution of the problem. According to IPCC, improved agriculture practices and forest related mitigation activities can mase a significant contribution to the removal of carbon dioxide from the atmosphere at relatively low cost. Carbon sequestration potential varies from land situations. It includes forests, grasslands, croplands, and wetlands. This review article examines carbon sequestration of specific land settings. The article also covers improvement techniques that might improve the potential for carbon sequestration in specific land settings. Agroforestry, conservation agriculture, afforestation and reforestation, and the rehabilitation of damaged lands are some of these initiatives. The review article also underlines the problems and restrictions with carbon sequestration, such as the possibility of carbon leakage, conflicts over land use, and the requirement for ongoing carbon stock monitoring and verification. Overall, this review article offers a thorough and current understanding of the potential for carbon sequestration in various land-use situations and its improvement measures.

**OUTLINE:**

1. Introduction

2. Current state of CO2 emissions.

2.1 Possible solutions for mitigation.

2.2 Challenges associated with ecosystem soils’ carbon sequestration.

2.3 Methods to measure soils’ carbon sequestration.

3. Types of ecosystem soils and their capacity to store carbon.

3.1 Grasslands.

3.2 Forests.

3.3 Wetlands.

3.4 Peat lands.

3.5 Drylands /deserts.

4. Factors impacting soil carbon sequestration potential of ecosystem soils.

4.1 Plant species.

4.2 Climatic conditions.

4.3 Soil texture.

5. Enhancement strategies.

6. Conclusion & Recommendations.