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## REVIEWER'S REPORT

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**Title: L' application de phospho-composts au biochar améliore la disponibilité des nutriments d' un sol sous cultures irriguées en climat tropical au Burkina Faso**

### Recommendation:

- Accept as it is**.....
- Accept after minor revision.....
- Accept after major revision .....
- Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

**Reviewer's Name:** Tahir Ahmad

**Reviewer's Decision about Paper:** **Recommended for Publication.**

**Comments** (*Use additional pages, if required*)

### Detailed Reviewer's Comment / Report

**General Assessment:** The study presents an insightful analysis of the effects of biochar-enriched phospho-composts on soil nutrient availability in an irrigated tropical environment. The experimental design is robust, utilizing a Fisher block arrangement with multiple treatments and replications. The research findings demonstrate significant improvements in soil chemical properties, which have direct implications for sustainable agricultural practices in Burkina Faso.

### Strengths:

#### 1. Relevance and Innovation:

- The study addresses a crucial issue of soil nutrient depletion in tropical agriculture.
- The integration of biochar and natural phosphate in compost formulations is an innovative approach to soil fertility enhancement.

#### 2. Experimental Design:

- The Fisher block design with randomized treatments and multiple replications ensures the reliability of the results.

### REVIEWER'S REPORT

- The two-season approach (rice and maize cultivation) provides a comprehensive assessment of soil amendments over time.
- 3. **Statistical Rigor:**
  - Statistical significance (P-values) is appropriately used to validate findings.
  - Key metrics such as pH, CEC, phosphorus, and potassium levels are well-documented and compared effectively.
- 4. **Practical Implications:**
  - The findings provide actionable recommendations for improving soil fertility using organic amendments.
  - The study highlights the potential for biochar-enhanced phospho-composts to sustain agricultural productivity in irrigated plains.

#### Areas for Improvement:

1. **Clarity in Treatment Descriptions:**
  - The description of the treatments, particularly the acronyms (Pcom, PcomBio, etc.), could be better structured for readability.
  - A table summarizing the treatments and their compositions would enhance comprehension.
2. **Discussion on Environmental Impact:**
  - The study could benefit from an additional discussion on the environmental benefits or potential drawbacks of biochar use, such as carbon sequestration or possible soil alterations over time.
3. **Long-Term Effects:**
  - While the study covers two growing seasons, future research could explore the long-term impacts of these soil amendments over multiple years.
  - Consideration of soil microbial activity and organic matter decomposition rates would add depth to the discussion.

**Conclusion:** This study provides valuable insights into the role of biochar-enriched phospho-composts in enhancing soil fertility under irrigated conditions. The findings have significant agricultural implications for regions facing nutrient depletion challenges. By addressing minor clarity issues and expanding discussions on environmental impact and long-term sustainability, the study could further strengthen its contributions to soil science and sustainable agriculture.