



Paper: “El carbono orgánico en los suelos de Quintana Roo (México) bajo condiciones de vegetación natural”

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Peer review:

Reviewer 1: Valeria Santa

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Reviewer 2: Evens Emmanuel

University of Quisqueya, Haiti

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Evaluation Criteria:

Please give each evaluation item a numeric rating on a 5-point scale, along with a thorough explanation for each point rating.

<i>Questions</i>	<i>Rating Result</i> [Poor] 1-5 [Excellent]
1. The title is clear and it is adequate to the content of the article.	5
<i>(Please insert your comments)</i>	
2. The abstract presents objects, methods, and results.	5
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3. There are a few grammatical errors and spelling mistakes in this article.	5
<i>Hay algunos errores mínimos marcados en rojo en el texto</i>	
4. The study methods are explained clearly.	5
<i>(Please insert your comments)</i>	
5. The results are clear and do not contain errors.	5

<i>(Please insert your comments)</i>	
6. The conclusions or summary are accurate and supported by the content.	4
<i>Hice un comentario sobre una tabla que expresa resultados sobre tipos de vegetación. Creo que sería importante expresar resultados con el mismo criterio para facilitar la comprensión Sugiero expresar en algún lugar del trabajo el contenido de carbono en el suelo de manera ordenada, ya que se menciona el lugar que ocupan los suelo (10, 13, 7, etc), pero en ningún lugar aparece una lista que sea fácil de interpretar</i>	
7. The references are comprehensive and appropriate.	3
<i>Sugiero unificar criterios de citas. Utilizar siempre “y” o “&”. Cuando el autor tiene doble apellido, deben figurar los dos apellidos en la cita Hay citas bibliográficas en las que no coinciden los años en el texto con los años citados en bibliográficas Hay citas en el texto que no se encuentran en la bibliografía En la bibliografía hay algunos años colocados entre paréntesis y otros no, sugiero unificar criterios. Hay citas bibliográficas en bibliografía que no aparecen en el texto</i>	

Overall Recommendation (mark an X with your recommendation) :

Accepted, no revision needed	X
Accepted, minor revision needed	
Return for major revision and resubmission	
Reject	

Comments and Suggestions to the Author(s):

Comments and Suggestions to the Editors Only:

Reviewer A:

Recommendation: Revisions Required

The TITLE is clear and it is adequate to the content of the article.

The title is informative and relevant, clearly conveying the focus on soil organic carbon (SOC) in Quintana Roo's soils under natural vegetation conditions. It effectively highlights the geographic specificity and ecological context, making it suitable for the journal's audience in environmental sciences.

Título

El título es informativo y relevante, transmitiendo claramente el enfoque en el carbono orgánico del suelo (COS) en suelos de Quintana Roo bajo condiciones de vegetación natural. Destaca la especificidad geográfica y el contexto ecológico, adecuado para la audiencia de la revista en ciencias ambientales.

The ABSTRACT clearly presents objects, methods, and results.

Abstract

The aim is clear: to determine SOC content in the top 30 cm of different soil groups associated with well-preserved vegetation in Quintana Roo. It succinctly outlines the methods (40 sampling points identified via GIS, field verification, Walkley-Black analysis), key findings (highest SOC % in Histosols, Leptosols, Fluvisols, and Phaeozems; highest Mg C ha⁻¹ in Histosols, Nitisols, and Phaeozems; influenced by soil type and vegetation), and implications (heterogeneity challenges generalizations). The abstract is concise and well-structured, though minor formatting issues (e.g., missing spaces in English version) should be addressed.

Resumen

El objetivo es claro: determinar el contenido de COS en los primeros 30 cm de diferentes grupos de suelo asociados a vegetación bien conservada en Quintana Roo. Resume sucintamente los métodos (40 puntos de muestreo identificados vía SIG, verificación de campo, análisis Walkley-Black), hallazgos clave (mayor % COS en Histosoles, Leptosoles, Fluvisoles y Phaeozems; mayor Mg C ha⁻¹ en Histosoles, Nitisoles y Phaeozems; influido por tipo de suelo y vegetación) e implicaciones (heterogeneidad desafía generalizaciones). El resumen es conciso y bien estructurado, aunque se deben corregir problemas menores de formato (e.g., espacios faltantes en versión inglesa).

There are a few grammatical errors and spelling mistakes in this article.

It's ok

The study METHODS are explained clearly.

Materials and Methods

Subject selection process: Clear; 40 sites were selected using GIS (QGIS 2.18) by overlaying soil (Fragoso et al., 2017), vegetation (Conafor-Semarnat, 2018), and land-use maps (INEGI, 2013), targeting well-conserved areas. Field verification confirmed WRB soil classification (IUSS, 2015). Exclusions (Calcisol due to mining; El Petén due to access) are noted.

Variables defined and measured appropriately: SOC (%) via Walkley-Black (triplicate); bulk

density (cylinder method); depth (30 cm or to bedrock for Leptosols); stoniness (%). Necromass separated. All standard for SOC studies.

Study methods valid and reliable: Yes; Walkley-Black is a widely accepted wet oxidation method for SOC. Formula for Mg C ha^{-1} (Ramifehiarivo et al., 2016) accounts for density, depth, and stoniness, enhancing accuracy. Descriptive stats (mean, SD, variance) appropriate for exploratory study.

Enough detail to replicate: Mostly yes; site selection criteria, sampling protocol (3 pits/site), lab processing detailed. Minor gaps: exact GPS coordinates or strata for sites; software version is given but could specify data layers.

Materiales y Métodos

Proceso de selección de sujetos: Claro; 40 sitios seleccionados con SIG (QGIS 2.18) superponiendo mapas de suelos (Fragoso et al., 2017), vegetación (Conafor-Semarnat, 2018) y uso de suelo (INEGI, 2013), enfocados en áreas conservadas. Verificación de campo confirmó clasificación WRB (IUSS, 2015). Exclusiones (Calciol por minería; El Petén por acceso) se mencionan. Variables definidas y medidas apropiadamente: COS (%) vía Walkley-Black (triplicado); densidad aparente (método de cilindro); profundidad (30 cm o hasta roca en Leptosoles); pedregosidad (%). Necromasa separada. Estándares para estudios de COS. Métodos de estudio válidos y confiables: Sí; Walkley-Black es método de oxidación húmeda ampliamente aceptado. Fórmula para Mg C ha^{-1} (Ramifehiarivo et al., 2016) considera densidad, profundidad y pedregosidad, mejorando precisión. Estadísticos descriptivos (media, DE, varianza) apropiados para estudio exploratorio.

Detalle suficiente para replicar: Mayormente sí; criterios de selección de sitios, protocolo de muestreo (3 calicatas/sitio), procesamiento de lab detallados. Brechas menores: coordenadas GPS exactas o estratos de sitios; versión de software dada pero podría especificar capas de datos.

The body of the paper is clear and does not contain errors.

Introduction

The background is clear and comprehensive, reviewing the global carbon cycle, SOC's role in mitigation, influencing factors (climate, vegetation, soil properties), and gaps in tropical karst regions like the Yucatán Peninsula. It justifies the research question—evaluating SOC in Quintana Roo's conserved soils and vegetation—by emphasizing limited local data, methodological inconsistencies in existing studies (e.g., depth variations, heterogeneous databases), and the urgency due to deforestation. The rationale is well-supported by citations, positioning the study as a needed regional contribution.

Introducción

El fondo es claro y completo, revisando el ciclo global del carbono, el rol del COS en mitigación, factores influyentes (clima, vegetación, propiedades edáficas) y brechas en regiones kársticas tropicales como la Península de Yucatán. Justifica la pregunta de investigación—evaluar COS en suelos y vegetación conservados de Quintana Roo—enfaticando datos locales limitados, inconsistencias metodológicas en estudios existentes (e.g., variaciones en profundidad, bases de datos heterogéneas) y urgencia por deforestación. La justificación está bien respaldada por citas, posicionando el estudio como contribución regional necesaria.

Results and Discussion

Data presentation: Appropriate; results describe SOC % and Mg C ha^{-1} by soil group (GPS) and vegetation, with variability noted. Text integrates data without repetition.

Tables and figures: Relevant (e.g., Cuadro 1: soils; Fig. 2: SOC % by soil; Fig. 3: Mg C ha⁻¹). Assumed clearly presented based on descriptions; labels (e.g., soil types, vegetation) precise. Categories (13 soils, 13 veg types) grouped logically by abundance and metrics. Units, rounding, decimals: Consistent (e.g., % SOC to 1 decimal; Mg C ha⁻¹ whole numbers). Appropriate for soil science. Text adds value: Yes; interprets patterns (e.g., Leptosol variability due to vegetation diversity) beyond raw data. Statistical significance: Not explicitly tested (no p-values); relies on descriptives, suitable for spatial survey but could benefit from ANOVA for soil-veg interactions. Practically meaningful results: Clear; e.g., Leptosols' high % but low storage due to shallowness has land-management implications. Discussion from multiple angles: Strong; contextualizes with global/tropical literature (e.g., Batjes, 2014; Zhang et al., 2016), addresses karst heterogeneity, vegetation influences, methodological variances. Avoids overinterpretation by noting limitations (e.g., no CalciSol sampling). Compares favorably to regional studies (e.g., Herrera et al., 2016 for mangroves).

Resultados y Discusión

Presentación de datos: Apropiaada; describe % COS y Mg C ha⁻¹ por grupo de suelo (GPS) y vegetación, con variabilidad notada. Texto integra datos sin repetición. Tablas y figuras: Relevantes (e.g., Cuadro 1: suelos; Fig. 2: % COS por suelo; Fig. 3: Mg C ha⁻¹). Asumidas claras por descripciones; etiquetas (e.g., tipos de suelo, vegetación) precisas. Categorías (13 suelos, 13 tipos veg.) agrupadas lógicamente por abundancia y métricas. Unidades, redondeo, decimales: Consistentes (e.g., % COS a 1 decimal; Mg C ha⁻¹ números enteros). Apropiaados para edafología. Texto añade valor: Sí; interpreta patrones (e.g., variabilidad de Leptosol por diversidad vegetal) más allá de datos crudos. Significancia estadística: No probada explícitamente (sin p-valores); se basa en descriptivos, adecuado para encuesta espacial pero podría beneficiarse de ANOVA para interacciones suelo-veg. Resultados prácticamente significativos: Claros; e.g., alto % pero bajo almacenamiento en Leptosoles por escasa profundidad tiene implicaciones para manejo de tierras. Discusión desde múltiples ángulos: Fuerte; contextualiza con literatura global/tropical (e.g., Batjes, 2014; Zhang et al., 2016), aborda heterogeneidad kárstica, influencias vegetales, varianzas metodológicas. Evita sobreinterpretación al notar limitaciones (e.g., sin muestreo de CalciSol). Compara favorablemente con estudios regionales (e.g., Herrera et al., 2016 para manglares).

The CONCLUSION or summary is accurate and supported by the content.

Conclusions

Conclusions directly answer the aim by summarizing SOC patterns by soil/vegetation, total state estimate (468 Mg C in top 30 cm), and key influences. Supported by results (e.g., Histosols highest) and references (e.g., FAO, 2002). Limitations (e.g., depth focus, exclusions) are acknowledged implicitly via discussion; they are not fatal but suggest future work (deeper profiles, full GPS inclusion). Opportunities for expansion: integrate necromass fully, model dynamics.

Conclusiones

Las conclusiones responden directamente al objetivo resumiendo patrones de COS por suelo/vegetación, estimado total estatal (468 Mg C en primeros 30 cm) e influencias clave.

Respaldadas por resultados (e.g., Histosoles más altos) y referencias (e.g., FAO, 2002). Limitaciones (e.g., enfoque en profundidad, exclusiones) reconocidas implícitamente en discusión; no fatales sino oportunidades para futuro (perfiles más profundos, inclusión total de GPS). Oportunidades de expansión: integrar necromasa completamente, modelar dinámicas.

The list of REFERENCES is comprehensive and appropriate.

It's correct

Please rate the TITLE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the ABSTRACT of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the LANGUAGE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the METHODS of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the BODY of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the CONCLUSION of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the REFERENCES of this paper.

[Poor] 1-5 [Excellent]

4

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

Overall Assessment for Authors

The study design is appropriate, employing a targeted GIS-based sampling of 40 conserved sites to quantify SOC in Quintana Roo's diverse karst soils and vegetation, addressing a clear gap in regional data for tropical carbon sequestration. It adds valuable localized insights, revealing high SOC variability driven by soil depth/stoniness and vegetation (e.g., flooded thorn forests >100 Mg C ha⁻¹), with a state-wide estimate of 468 Mg C in top 30 cm—contributing to better karst ecosystem modeling and policy. Major flaws include minor methodological gaps (e.g., no statistical tests for interactions; limited site coordinates), inconsistent English abstract formatting,

reference errors (e.g., incomplete URLs, citation dates like "Cruz et al., 2003c" vs. 2013), and unshown figures/tables (assumed adequate but verify clarity). The article is largely consistent, with logical flow from heterogeneity emphasis to conclusions.

Recommendations: Proofread for typos/formatting; add inferential stats (e.g., ANOVA); provide figure/table files; correct references; expand limitations (e.g., Walkley-Black underestimation in organics). Strengthen by including necromass SOC integration. Overall, a solid contribution; revise and resubmit.
