



SDI Review Form 1.6

Journal Name:	Journal of Experimental Agriculture International
Manuscript Number:	Ms_JEAI_49631
Title of the Manuscript:	Effects of rice husk biochar and calcium amendment on remediation of saline soil from rice-shrimp system in Vietnamese Mekong Delta: Results from laboratory experiment
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



SDI Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>Introduction: The author needs to organize better introduction. Also, was write little about biochar and nothing about calcium and its potential to reduce the salinity in the soil. For example, what is the mechanism?</p> <p>The hypotheses were not present in the introduction.</p> <p>The methodology needs to organize better, according to the comments below.</p> <p>The Results and discussion, I suggest, put together.</p>	<p>According the first and second comments, we rewrote the last paragraphs of introduction (as in revised file) to include the explanation of the potential to reduce salinity by biochar and calcium and our hypothesis in this study. For this, we newly cited 3 references and accordingly changed the reference numbers.</p> <p>We responded as below</p> <p>Our option is that we should separate the results and discussion in this study because some points and results we need to discuss together.</p>
Minor REVISION comments	<p>English - The English must need a reviewer. I like the English service company, responsible: ivangtz20@gmail.com</p> <p>Title: Results from laboratory experiment- delete</p> <p>Abstract: t ha⁻¹ - delete and put Mg ha⁻¹</p> <p>Introduction:</p> <p>Confuse: "This process is repeated several times to reduce salinity from the soil and requires a huge amount of fresh water, in spite that many of these areas do not have enough fresh water during that period. Thus, some techniques to improve this salinity (or reduce)? washing process are necessary to save time and water in salinity washing." You already said this.</p> <p>Recently, application of biochar (a solid material produced from biomass pyrolysis under low/no oxygen environment) to agriculture has received attention. Biochar amendment to soil has been described as a promising tool to improve soil quality, sequester carbon and mitigate greenhouse gas emissions [4-10]. However, most studies have evaluated benefits of biochar incorporation in non-saline soils while the application of biochar to salt affected soils has received less attention [11-13]. In addition, biochar may improve chemical and physical properties of saline soils since it can be a source of elements such as Ca²⁺ and Mg²⁺ [13-15], which aid in Na⁺ exchange and improve soil structure more suitable for sodium leaching. Therefore, application of biochar to salt affected soils needs more attention and further investigation. The objective of this study was to investigate the effects of biochar and calcium amendments on alleviating constraints in saline soil under laboratory conditions.</p>	<p>Thank you very much for the comment. In the revised manuscript, we most carefully checked our contents.</p> <p>Thank you very much for the comment. We deleted the part "Results from laboratory experiment" from the title</p> <p>Abstract: We agree and used Mg ha⁻¹ in the manuscript</p> <p>Introduction:</p> <p>We rewrote this part as: "This process is repeated several times to level down salinity in the soil and requires huge amount of fresh water, in spite that many of these areas do not have enough fresh water during this period. Thus, some techniques to improve this salinity washing process are necessary to save time and fresh water." (improve this salinity washing technique)</p> <p>We revised this paragraph to include some information on roles of biochar and Ca in saline soil remediation (in the revised file).</p>



SDI Review Form 1.6

	<p>Improve both paragraphs</p> <p>The actor needs to write the hypothesis and the effect of the Calcium on the salinity and the combination between calcium and biochar on the saline soil.</p> <p>Materials</p> <p>Soil with a high electrical conductivity (EC) value was collected from a rice-shrimp field in the Mekong Delta and used for salinity leaching experiments.</p> <p>Improve your phrase. Subject+verb+ predicate.</p> <p>Please improve the first table. For example, there are many repetitions like this ($\text{cmol}_c \text{ kg}^{-1}$). Put one line above with this information.</p> <p><i>It is not necessary to put this information ND: Not determined-</i></p> <p>Chemical mensuraments</p> <p>Soil pH and EC: deionized water was mixed with soil at the ratio 1:5 (soil:water) and the mixture was shaken for 2 hours at 120 rpm. Measurement was done using pH and EC meters (pH meter Metrohm 744 and EC meter Horiba B-173, respectively). (citation?)</p> <p>Soluble Na, K and Ca: deionized water was mixed with soil at a ratio of 1:10 and the mixture was shaken for 1 hour at 120 rpm. Then, the mixture was passed through filter paper (Advantec 5C) and ions in the filtrate were determined with flame photometry (Flame Photometers, BWB). (citation?)</p> <p>Exchangeable Na, K and Ca: Exchangeable cations were obtained by subtracting soluble cations from extractable cations. Extractable cations were analyzed by extracting soil sample (2.5 g) three times with 0.1 M BaCl_2 solution (each time 30 ml) and with 1 hour shaking and determined with flame photometry. (citation?)</p> <p>Speed of drainage- how did you measure that?</p> <p>2.4. Data analysis</p> <p>This information is in the wrong place. "The ESP (Exchangeable Sodium Percentage) is an important indicator for saline soil. If this value is higher than 6, that soil is considered sodic and if it is higher than 15, that soil is strongly sodic [18].</p> <p>Where Na^+ is the content of exchangeable sodium ($\text{cmol}_c \text{ kg}^{-1}$) and CEC is the cation exchange capacity ($\text{cmol}_c \text{ kg}^{-1}$)."</p>	<p>Materials</p> <p>We revised: "Soil with high electrical conductivity (EC) value from a rice-shrimp field in the Mekong Delta was used for salinity leaching experiments."</p> <p>Chemical measurements</p> <p>Soil pH and EC: deionized water was mixed with soil at the ratio 1:5 (soil:water) and the mixture was shaken for 1 hours at 120 rpm. Measurement was done using pH and EC meters (pH meter Metrohm 744 and EC meter Horiba B-173, respectively). [21]</p> <p>All methods we already described in detailed.</p> <p>Speed of drainage: We also mentioned in the manuscript. The revised paragraph is: "Speed of drainage: For the leaching speed, data was collected at 24, 27, 30, 33 and 48 hours after opening the soil column. Based on the linearity of infiltration drainage, the slope (coefficient a of the liner function $y = ax + b$, where y represents the volume of eluent in ml, x represents the time of drainage in hour) was used to compare the speed of drainage among the treatments."</p> <p>2.4. Data analysis</p> <p>We agree with this comment and move this part to 2.3 (as in revised manuscript)</p>
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



SDI Review Form 1.6

	<p>In the data analysis section the actor need to write only about it.</p> <p>Data analysis? (repetition) The statistical analysis was done by using Minitab software. Are you made ANOVA and test of significance?</p> <p>3. RESULTS</p> <p>Fig. 2. Formation problem in the description of the figure Fig. 2. What means EC?</p> <p>3.3 Ion concentrations in soil and leachate</p> <p>Applying biochar (both A and B) significantly ($P = .05$) decreased soluble Na in soil after the leaching experiment (Table 2). Exchangeable Na in soil was the lowest when applying 50 g kg⁻¹ biochar B with a low rate of CaO (0 and 0.5 g kg⁻¹). Exchangeable Na (repetition) in soil tended to be lower in B and B+0.5Ca than in A and A+0.5Ca.</p> <p>English problem</p> <p>Redaction problem</p> <p>The Na⁺ sorption capacity of biochar A was double than that of biochar B (Fig. 7). The Na sorption capacity of both biochar increased with concentrations of Na⁺ in solution and reached the peak at 4000 mg Na L⁻¹.</p> <p>Figure 6. Y please put the correct description.</p> <p>Comments about table 2 and table 2</p> <p>Discussion</p> <p>4.3 Effectiveness of biochars in removing sodium and other soil chemical properties</p> <p>Chaganti and Crohn (2015), formation problems</p> <p>Please indicate the figure in your discussion or table. Two biochars used in this study were produced with the pyrolysis temperature around 600°C, but in different methods. Biochar A was a commercial product, and biochar B was produced manually by slow pyrolysis of opened rice husk mound. Therefore, results suggested that the same material but different pyrolysis processes might lead to difference in sorption capacity of biochar.</p> <p>(methodology and not discussion) or you rewrite this sentence.</p>	<p>This sentence was revised: "The averages of triplicate determinations together with the standard deviation were presented in all tables and figures. Any significant differences among treatments were determined by ANOVA using Minitab software."</p> <p>3. RESULTS</p> <p>The formation was revised, with the title: "Periodical change of Electrical Conductivity (EC) in the eluents from soil columns"</p> <p>3.3 Ion concentration in soil and leachate</p> <p>Revised: "Applying biochar (both A and B) decreased significantly ($P = .05$) soluble Na in soil after the leaching process (Table 2). Exchangeable Na in soil was the lowest when applying 50 g kg⁻¹ biochar B with a low rate of CaO (0 and 0.5 g kg⁻¹) and was lower in biochar B treatments than in biochar A treatments ($P = .03$)."</p> <p>We agree with adding "The" at the beginning of sentence and revised in the manuscript.</p> <p>Figure 6. The description was revised: "Change in K: Na and Ca:Na ratios of soil after leaching". Deleted "Ratio" in Y</p> <p>Discussion</p> <p>4.3 Effectiveness of biochars in removing sodium and other soil chemical properties Revised: "Chaganti and Crohn [7]"</p> <p>We revised the manuscript to show the numbers of figure and table in discussion.</p> <p>Two biochars used in this study were produced with the same pyrolysis temperature (around 600°C), but in different methods. Therefore, results suggested that the same material but different pyrolysis processes might lead to difference in sorption capacity of biochar.</p> <p>Another part we moved to 2.1: "Biochar A was produced manually by slow pyrolysis of opened rice husk mound and biochar B was produced industrially"</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



SDI Review Form 1.6

	<p>What is the practical application of this study?</p> <p>5. CONCLUSION</p> <p>What is the biochar you can indicate for the farmers for example?</p>	<p>We are now conducting a field experiment. According to this comment, we moved the following sentence from part 4.1 to the conclusion for more clear "Field studies are now conducted to evaluate the residual effects of biochars on rice crops in a rice-shrimp cropping system in the Mekong Delta".</p> <p>5. CONCLUSION</p> <p>According to this study, we suggested in the conclusion that "commercially available biochar with lower sorption Na capacity and lower surface" was a better choice for the purpose of washing sodium from saline soil before planting.</p>
<u>Optional/General</u> comments	<p>After these changes indicated above this article may be better for publication</p>	<p>Thank you very much for comments. The comments are highly insightful and enabled us to greatly improve the quality of our manuscript</p>

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<u>(If yes, Kindly please write down the ethical issues here in details)</u>	