



SDI Review Form 1.6

Journal Name:	Annual Research & Review in Biology
Manuscript Number:	Ms_ARRB_40947
Title of the Manuscript:	Improvement of Delignification, Desilication and Cellulosis Content Availability in Paddy Straw via Physico-Chemical Pre-treatments
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>)



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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>1) It is not a innovative research, as many have carried out studies with lignocellulosic biomass and different forms of pretreatment. Due to inhibitors formed, industrial plants have opted for steam explosion technology over chemical pretreatments. An important point when think about process efficiency is harnessing and characterizing the pretreatment broth to also ferment it.</p> <p>2) The manuscript needs to be rewritten in a formal and correct English and the writing must be unique (pre-treatment or pretreatment). Authors should take greater care with the time interval of more than 1 year for this publication. In this sector, technologies advance very fast.</p> <p>3) Keywords, which reflect the main interest/focus of the research, should be better chosen. Just imagine the search criteria you would make for similar manuscript.</p> <p>4) It's necessary to mention the name and not just the reference number at the beginning of the sentence, like lines 32 (Ibrahim [8]) and 36 (According to Liu and Zao [10]).</p> <p>5) The tables should be as close as possible to your first quote and avoid breaking them on different pages (Table 1).</p> <p>6) The methodology needs to be better detailed. It does not report the reaction temperature with HNO₃ and NaOH in Table 1.</p> <p>7) Regarding the results and discussion: the first thing is that there is no significant difference between the treatments with 5 and 8 mm for cellulose, hemicellulose and lignin (Table 2). The unique difference was in the ash content. There is no comparison of the results with the literature.</p> <p>8) Table 3 presents strange results. In the treatment with HNO₃ only the sum is above 100%, reaching in the last condition more than 121%. This leads to the fact that analytical determinations need to be more accurate.</p> <p>Another fact that draws attention is that with the acid pretreatment there is the release of hemicellulose into the medium, making cellulose more accessible, which does not occur in these treatments. With alkaline treatment, in addition to hemicellulose, it has the lignin disruption, naming the broth as black liquor, and only the reduction of the latter is seen. I know by delignification not the pretreatment itself, but a later step in the pretreated broth, with rapid pH rise, usually with CaCO₃, followed by neutralization, for the reduction of potential fermentation inhibitors such as furfural, HMF, acetic acid, among others.</p> <p>9) There's no reason to discuss the components present in the ash, as silicon, if they have not been quantified. It would be interesting to test the enzymatic digestibility of the residues.</p> <p>10) Electron microscopy should have a larger size and be more discussed</p>	<p>(1) Steam explosion seems to be very effective for hardwoods, but ineffective for softwoods that contain a comparatively large amount of condensed-type lignin (Asada et al 2012). Limitations of steam explosion include destruction of a portion of the xylan fraction to volatile compounds, and incomplete disruption of the lignin-carbohydrate matrix (Chiaramonti et al 2012). This explanation has been added on Line 205 -208. The reason we choose physico-chemical pretreatment because we want an approach that is easily available for everyone in their laboratory (especially for university or under privilege country).</p> <p>(2) We already changed from pre-treatment to pretreatment.</p> <p>(3) We change the into a new keyword - <i>Keywords: Biofuel, chemical pretreatment; lignocellulosic biomass; physical pretreatment; SEM images</i></p> <p>(4) The citation style has been changed according to reviewer's suggestion.</p> <p>(5) Table 1 and Table 2 have been moved up to the first quote of the table as suggested by the reviewer.</p> <p>(6) The reaction temperature which is at room temperature has been added to Table 1.</p> <p>(7) The comparison of the result has been discussed in previously in Line 118 -126. The</p> <p>(8) The reviewer's comment on why the total percentage of pretreatment of HNO₃ are above 100%, reaching in the last condition more than 121% has been explained 240-245. The apparent increased of silicon content may due to the mechanism of HNO₃ in removing organic and inorganic (non-silicon) components in paddy straw during soaking process resulting the sample weigh more than 50% of control samples. Besides that, each of lignocellulosic component is been identified individually by following the steps in the reference methodology. The result produced by this method has been repeated for two times to verify their final outcome but still the value reaches more than 100%.</p> <p>(9) The selection of ash is important as the quality of ash determines the total amount as well as quality of silica recoverable Ash which has undergone maximum extent of combustion is highly desirable as it contains higher percentage of silica (Mittel, 1997). The importance of ash content determination has been added to Line 177-180.</p> <p>(10) The images have been scaled up for a better viewing as suggested by the reviewer. More discussion point has been added on Line 256 -257 and Line 259 – 261.</p>
Minor REVISION comments		



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<u>Optional/General</u> comments		