



SDI Review Form 1.6

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| Journal Name:            | <a href="#">International Research Journal of Pure and Applied Chemistry</a>  |
| Manuscript Number:       | Ms_IRJPAC_49672   |
| Title of the Manuscript: | Characterization of biochars and their application rates on soil moisture retention in light textured soil of Assam |
| 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**

|                                     | <b>Reviewer's comment</b>  | <b>Author's comment</b> (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) |
|-------------------------------------|--|--|
| <b>Compulsory</b> REVISION comments | <p>Study on characterization of biochars prepared from four different feed stocks to determine the suitability of biochar to conserve soil moisture. After determining the physicochemical properties, a set of pot culture experiment was conducted (15-75 days) in four hundred gram of soil with four doses of biochars (0, 0.5, 1.0, and 1.5% wt/wt), that resulted increase in biochar doses increased 10-15% the soil moisture content vs control. The application of biochar (except rice husk biochar) had effects on plant available water in soil.</p> <p><b>REMARK:</b> the moisture retention capacity biochar is an well known knowledge. Failures:</p> <ol style="list-style-type: none"> <li>1) Biochar is certainly not a product of incomplete combustion of biomass and not a fine-grained highly porous charcoal substance. This is a serious mistake to mix up biochar, charcoal and activated carbon materials as same as, while these 3 materials are 3 different products and very different substances.</li> <li>2) Biochar itself does not have nutrient content, this is an soil improver.</li> <li>3) The biochar cation exchange capacity, pH value (surface chemistry) and carbon content not improving water retention itself.</li> <li>4) Pyrolysis conditions not specified, although this is the major factor + feed material character determining biochar quality.</li> <li>5) Statement missing that this mirco-scale experiment is not representative to the true value conditions in operational environment.</li> <li>6) Sampling is incorrect and not relevant to any standard, its results uncertain.</li> <li>7) Ash content measurement dry (Activated Carbon) sample statement is unclear and incorrect.</li> <li>8) Determination of the key parameter volatile residual content is missing.</li> <li>9) Term "Heavy Metals" not used in modern chemistry, this is the "metals and metalloids".</li> <li>10) The resulted increase in biochar doses with increased 10-15% the soil moisture content vs control stated as good results, but in reality this is rather low, for which no explanation made.</li> </ol> |  |
| <b>Minor</b> REVISION comments      | It is suggested that the relatively low moisture retention capacity even for the bamboo leaf biochar 20.1 vs 16.9 control under long period is coursed by the low quality biochar, possibly containing higher volatile residuals fixed in the pores, but that not measured.  |  |
| <b>Optional/General</b> comments    | Rice husk biochar on the picture show and low grade pyrolysis materials – indicating wrong pyrolysis conditions.,  |  |



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**PART 2:**

|   | <b>Reviewer's comment</b>  | <b>Author's comment</b> <i>(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)</i> |
|---|--|---|
| <b>Are there ethical issues in this manuscript?</b> | <i>(If yes, Kindly please write down the ethical issues here in details)</i> |   |

**Reviewer Details:**

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|----------------------------------|----------------------|
| Name:                            | <b>Edward Someus</b> |
| Department, University & Country | <b>Hungary</b>       |