|  |  |  |  |
| --- | --- | --- | --- |
| Title | Effect of Biochar Application on Soil Carbon Fluxes from Sequential Dry and Wet Cultivation Systems | | |
| Author(s) Name | Mahmudul Islam Piash, Md. Faruque Hossain, Ihuoma N. Anyanwu, Shamim Al Mamun, Zakia Parveen | | |
| Contact Email(s) | hossainfaruque@hotmail.com, mfhossain@aiub.edu | | |
| Published Journal Name | American Journal of Climate Change | | |
| Type of Publication | Journal | | |
| Volume | 7 | Issue | 1 |
| Publisher | Scientific Research Publishing | | |
| Publication Date | March 5, 2018 | | |
| ISSN | 2167-9509 | | |
| DOI | https://doi.org/10.4236/ajcc.2018.71005 | | |
| URL | https://www.scirp.org/journal/paperinformation.aspx?paperid=82818 | | |
| Other Related Info. | Pages 40-53 | | |
| **Keywords:** Greenhouse Gases, Carbon Emission, CO2, CH4, CO, Emission from Submergence | | | |
| Citation: Piash, M. , Hossain, M. , Anyanwu, I. , Mamun, S. and Parveen, Z. (2018) Effect of Biochar Application on Soil Carbon Fluxes from Sequential Dry and Wet Cultivation Systems. American Journal of Climate Change, 7, 40-53. | | | |

|  |  |
| --- | --- |
| Abstract |  |
| Application of biochar has been highly credited for its potential to sequester carbon and GHG mitigation from tropical agro-ecosystems. However, experiments show inconsistent results depending on soil and biochar type, cultivation system, climatic condition and the type of evolved GHGs. This study emphasized on the effect of biochar on carbon emission trends from a sequential dry and wet cultivation system of Bangladesh. An incubation study was conducted with two contrasting soils and eight different treatments viz. control, only fertilizer, three different biochars (10 t·ha-1) with and without recommended fertilizer dose. Results revealed the fact that, emission of carbon was substantially higher from Sara soil than Kalma soil. Biochar treatments did not have any easing effect on CO2 emission at field condition; rather, increased in most of the cases. However, emission was significantly (P < 0.05) suppressed at submerged condition by biochar application. Non-fertilized water hyacinth biochar was most effective in this regard. In general, fertilizer application caused higher emission of CO2. Biochar application was ineffective to control CH4 and CO release to atmosphere and submergence further intensified their emission significantly. The overall results indicate that applied biochars have negligible effect on carbon emission except for reducing CO2 from submerged soils. | |

**Please specify which Sustainable Development Goal (SDG) (s) falls under your research:**

|  |  |  |  |
| --- | --- | --- | --- |
| Goal 1 | No Poverty | Goal 2 | Zero Hunger |
| Goal 3 | Good Health and Well-Being | Goal 4 | Quality Education |
| Goal 5 | Gender Equality | Goal 6 | Clean Water and Sanitation |
| Goal 7 | Affordable and Clean Energy | Goal 8 | Decent Work and Economic Growth |
| Goal 9 | Industry, Innovation and Infrastructure | Goal 10 | Reduced Inequalities |
| Goal 11 | Sustainable Cities and Communities | Goal 12 | Responsible Consumption and Production |
| **Goal 13** | **Climate Action** | Goal 14 | Life below Water |
| Goal 15 | Life on Land | Goal 16 | Peace, Justice and Strong Institutions |
| Goal 17 | Partnerships for the Goals |  |  |