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| Title | Fractionation of Organic Carbon in Arial Beel Wetland Soils of Bangladesh | | |
| Author(s) Name | Monera Akter Eva, Mahmudul Islam Piash, Md. Faruque Hossain and Zakia Parveen | | |
| Contact Email(s) | mfhossain@aiub.edu, hossainfaruque@hotmail.com | | |
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| Abstract |  |
| A study was conducted to determine the organic carbon fractions in the vertical sections of a benchmark wetland soil of Bangladesh (Arial Beel) and their dynamics that directly affect the biogeochemistry of soil, water and plant biomass ecosystem. Two distinctive soil series viz. Sara and Arial are characterized such as pH, moisture content, textural class, CEC, organic carbon (SOC), bulk density and total organic matter etc. Different extraction methods were used for the fractionation of dissolved organic carbon such as water-soluble Fraction (WSC), hot water extractable fraction (HWC; 80°C), labile fraction (CaCl 2-extractable; LF), moderately labile fraction (Pyrophosphate-extractable; MLF), polyaromatic fraction (toluene + methanol extractable), Microbial Biomass C Fraction (MBF) and the remaining Resistant Fraction (RF). The total organic carbon content ranges from 0.72 to 1.95%; surface horizons had higher C than underneath horizons and prolonged inundation increased the C content mostly. Higher CEC of the soils had a positive correlation to HWC, MBC and RF. The DOC content particularly MLF was found higher in surface and substratum than subsurface horizons in most of the soils. The HWC and ML fraction had highly significant (p<0.01) effect to increase the MBC. Resistant Fraction (RF) was the most prominent SOC fraction of the soils. The substratum of all the Arial soils had a significant amount of organic C storage (>1%) which is relatively resistant to further degradation and might be considered as sequestered C. Short inundated period and scope of winter Robi crops might have caused Sara soil to have relatively lower organic C and RF than Arial. Moreover, the amount of DOC fractions in Sara series was lower and that decreased with depth but in Arial series, fractions varied within the profile. | |

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

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| 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 |  |  |