

Fig. S1. Isolated Fulvic acid (A) and Humic acid (B)



 Fig.S2. UV-Vis Spectrum of (A) Fulvic acid (B) Humic acid

UV-Vis spectrums of fulvic and humic acid was in the range of 200 to 600 nm and 200 to 550 nm, respectively (Fig. S2). Both the acids exhibit wide uncharacteristic spectra consistent with earlier reported studies conducted on structural elucidation of natural organic matter (Kyoichi, 1987).

E2/E3 and E4/E6 ratios were measured from UV/vis spectrums and presented in Table S2. Measured values of E2/E3 ratio for all organic matter are in the range from 2 to 5 while E4/E6 values are in the range from 1 to 4. E4/E6 values for insoluble NOM (1.875) and Humic acid (3.099) shows higher aromatic compounds than soluble NOM and Fulvic acid as lower values are indicative of more humification and presence of hydroxyl, carbonyl, carboxyl and ester groups. Meanwhile E2/E3 values for insoluble NOM (2.025) and Humic acid (2.463) shows the presence of compounds exhibiting higher molecular weights.

**Table S1.** Physical properties of soluble NOM, insoluble NOM, Fulvic and Humic acid

|  |  |  |  |
| --- | --- | --- | --- |
| **NOM** | **Color** | **Odor** | **PH** |
| **Soluble NOM** | Yellowish brown |  Odorless  | Acidic |
| **Insoluble NOM** | Blackish | Muddy  | Neutral  |
| **Fulvic acid** | Golden-Yellow |  Candy  | Acidic |
| **Humic acid** | Brown | Odorless | Acidic |

**Table S2.** E2/E3 and E4/E6 ratios for isolated fractions of NOM

|  |  |  |
| --- | --- | --- |
| **NOM** | **E2/E3** | **E4/E6** |
| **Soluble NOM** | 4.370 | 3.532 |
| **Insoluble NOM** | 2.025 | 1.875 |
| **Fulvic acid** | 2.761 | 3.940 |
| **Humic acid** | 2.463 | 3.099 |