

Supplementary Materials: Thermal Remediation of Soil Contaminated with Polycyclic Aromatic Hydrocarbons: Pollutant Removal Process and Influence on Soil Functionality

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1. Detection Methods

Soil pH: 10 g through 1 mm meshes soil was prepared in 25 mL beaker, 10 mL 0.01 mol·L⁻¹CaCl₂ solution was added and mixed fully with soil. After standing 30 min, a pH meter (PHSJ-4A, Shanghai Leici, China) was used for pH value detection.

Soil CEC: 2 g through 1 mm meshes, soil was prepared in 25 mL plastic bottle, 20 mL ammonium oxalate-ammonium chloride solution as added, then lid covered and oscillated on thermostatic oscillator for 15 min at rate of 170 r·min⁻¹, then 10 mL sample was prepared in Kjeldahl bottle, settled on azotometer (SR-04D, Sheyanyiqi, China) and recorded the volume of hydrochloric acid.

Soil PAHs: The PAH content of the soil was measured using an ultrasonic method and detected by a gas chromatograph-mass spectrometer (7000B, Agilent Technologies, Santa Clara, CA, USA). The extraction solution was n-hexane and tetrachloromethane, and the detection temperature was 280 °C.

2. Supplementary data

Results of changing of pH and CEC though the thermal treatment were showed as following table.

Table S1. Changing of pH and CEC though the thermal treatment.

| Soil | pH | CEC (cmol·kg ⁻¹) |
|---------------|-----|------------------------------|
| Original soil | 7.7 | 3.05 |
| 50°C | 7.4 | 2.91 |
| 100°C | 7.5 | 3.02 |
| 200°C | 8.0 | 3.02 |
| 400°C | 8.4 | 3.05 |
| 800°C | 8.5 | 3.05 |