Organic Matter
Characterization from sediments of the Tietê and Piracicaba rivers dam (Brazil)

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SEDIMENTS

Complex and heterogeneous environments

Determining the concentration of toxic metals

Understanding the sediment's ability to accumulate or release contaminants

Biogeochemical processes are involved, influencing the fate of these metals

THE MAIN MODES OF DISPERSION

I. Early diagenesis

II. Natural or anthropogenic resuspension

III. The diffusive flow at the water-sediment interface

Sediment collection

Map showing stations along the Piracicaba river and the Tietê river.
Preparo das amostras

69 sediment samples

Depth of sediment cores

- Station 1: 0 - 48 cm
- Station 2: 0 - 35 cm
- Station 3: 0 - 28 cm
- Station 4: 0 - 67 cm
- Station 5: 0 - 48 cm
- Station 6: 0 - 34 cm
- Station 7: 0 - 59 cm

Freeze-dried

Ground

100-mesh sieve
SedOM extraction

NaOH and deionized water

1 g +

45.0 mL

0.1 mol L⁻¹ NaOH or deionized water

Sediment

Shaken for 24 h at 10 rpm

Centrifuged at 3,000 g for 10 min

Filtered over a 0.45 µm syringe filters.
Fluorescence in EEM mode

- 1.0 mL of each sample
- 1.0 mL of 0.3 mol L\(^{-1}\) HEPES
- 1.5 mL of 0.1 mol L\(^{-1}\) NaClO\(_4\)

Fluorescence spectra

- **Scan speed**: 2400 nm min\(^{-1}\)
- **Emission**: From 250 to 700 nm
- **Excitation**: From 200 to 500 nm
- **Steps**: 5 nm
- **Slits of emission**: 5 nm
- **Detector voltage**: 700 V
Data processing

PARAFAC (PROGMEMEF software)

Four components

CORCONDIA of 83.3%
SedOM fresher, simpler and less humidified

SedOM older, more complex and more humidified

Acknowledgments