

Supplementary Materials

Microfluidic Electronic Tongue Applied to Soil Analysis

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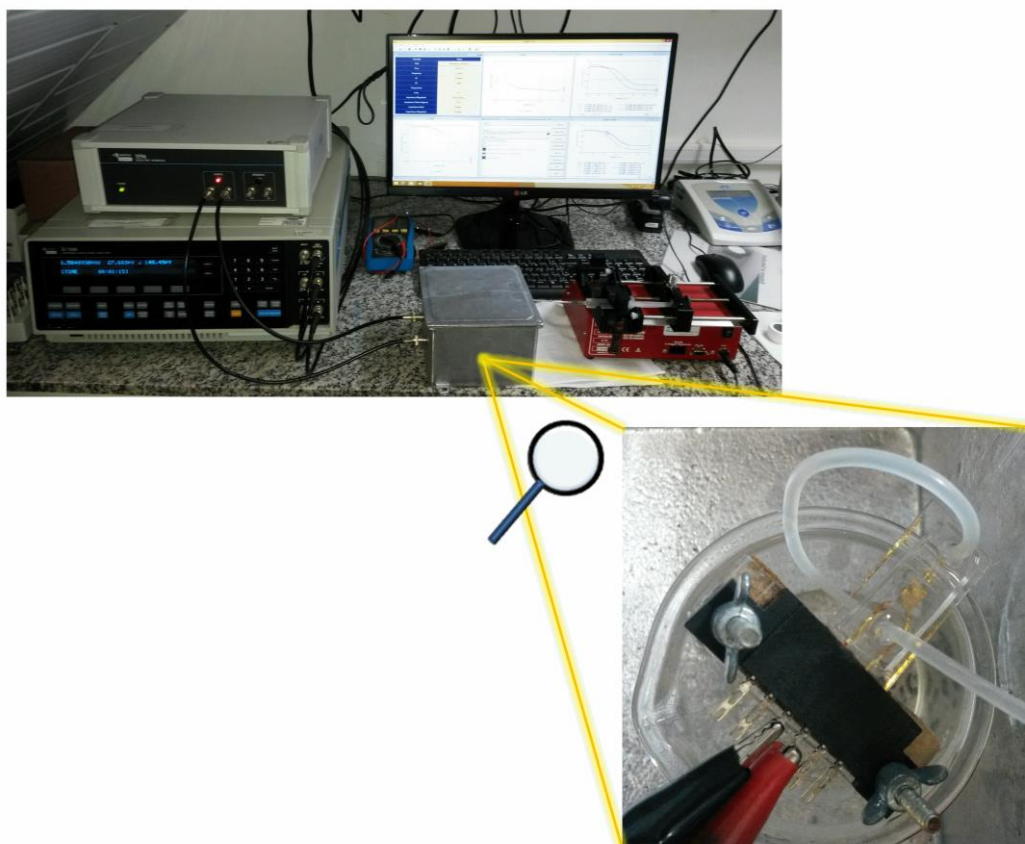


Figure S1: Scheme of the whole setup used for the soil measurement zooming at one sensing unit.

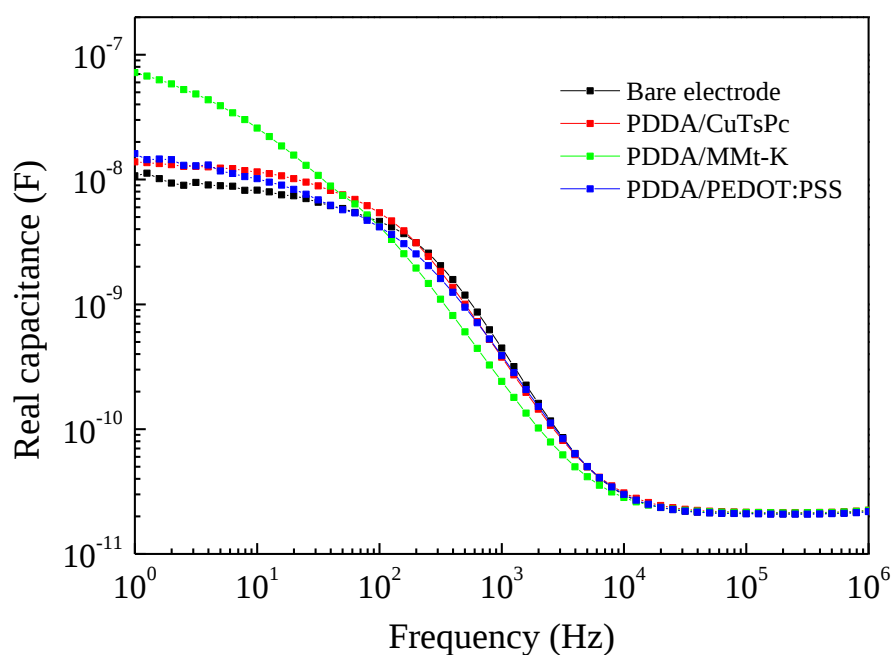


Figure S2: Capacitance spectra for the bare electrode, PDDA/CuTsPc, PDDA/MMt-K and PDDA/PEDOT:PSS sensing units in distilled water at 5000 $\mu\text{L/h}$ flow.

In order to optimize the statistical analysis, a simple feature-selection procedure was applied using the Parallel Coordinates, illustrated in Figure S3. In this case at the top of each frequency in the graph there are boxes filled in blue (relevant information), red and white (data do not assist the discrimination) colors. With PEx-Sensors we found that the frequency range between 79 Hz and 25 kHz is the most adequate to discriminate the soil samples (Figure S3(b)), with prevailing blue boxes at the top of the graph.

Table S2: Nutrients available to the plants according to traditional soil chemical analysis for the seven soil samples used.

Soil sample	N (mg kg ⁻¹)	P (mg dm ⁻³)	K (mmol _c dm ⁻³)	Ca (mmol _c dm ⁻³)	Mg (mmol _c dm ⁻³)	S (mmol _c dm ⁻³)
Control	1386	06	1.0	10	02	41
Nitrogen (N)	1540	-	-	-	-	-
Phosphorus (P)	-	88	1.2	09	03	17
Potassium (K)	-	05	6.8	11	03	21
Calcium (Ca)	-	05	1.3	16	03	16
Magnesium (Mg)	-	04	1.2	11	25	25
Sulfur (S)	-	05	1.1	15	04	261



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