

## Supporting Information

### ***Carbon Dots from Contaminated Eichhornia Crassipes Roots for Spectrally Multiplexed Identification and Sensing of Solvents***

**M. Rangel<sup>1,2</sup>, S.D. Torres Landa<sup>1</sup>, I. E. Serrato-Mireles<sup>3</sup>, Y. Kumar<sup>1,4</sup>, N. Dasgupta Schubert<sup>3</sup>, J. E. García<sup>5</sup>, J. S. Pérez-Huerta<sup>2</sup>, V. Agarwal<sup>1\*</sup>**

<sup>1</sup> Centro de Investigación en Ingeniería y Ciencias Aplicadas, IICBA- UAEM, Av. Univ. 1001, Col. Chamilpa, Cuernavaca, Morelos, 62209, México

<sup>2</sup>Unidad Académica de Ciencia y Tecnología de la Luz y la Materia-UAZ, Circuito Marie Curie S/N, Parque de Ciencia y Tecnología QUANTUM Ciudad del conocimiento, 98160, Zacatecas, Zac., México

<sup>3</sup>Facultad de Ciencias fisicomatemáticas, Universidad Michoacana de San Nicolás de Hidalgo, Santiago Tapia 403, col. Centro, 58000 Morelia, Mich., México

<sup>4</sup>Facultad de Física y Matemáticas (FCFM), Universidad Autónoma de Nuevo León (UANL), Cd. Universitaria, San Nicolás de Los Garza, N.L., 66451, México

<sup>5</sup>Secihti -Cinvestav, Unidad Saltillo, Ave. Industria Metalúrgica 1062, Parque Industrial, Ramos Arizpe, 25900, Coahuila, México

\*Corresponding author e-mail: [vagarwal@uaem.mx](mailto:vagarwal@uaem.mx)

**Table S1.** Parameters of water from Jovita lagoon in “Naranja de Tapia”, Michoacán, México and *E. crassipes* roots.

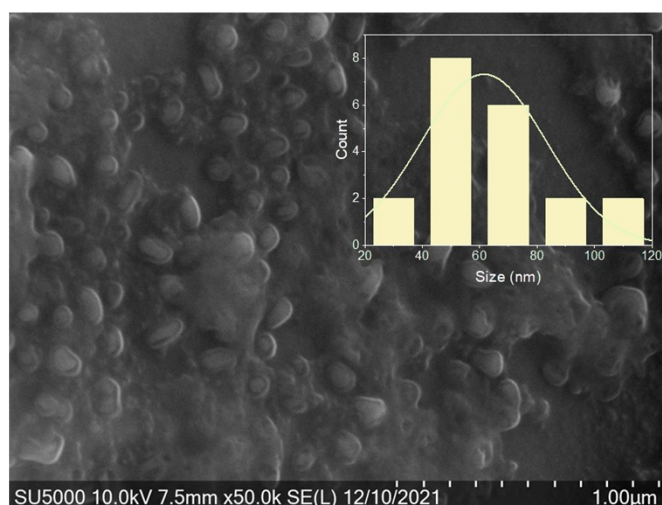
Parameter	Polluted water	<i>E. crassipes</i> roots
pH	8.4 ± 0.15	7.14 ± 0.18
Conductivity (mS)	533.3 ± 4.73	4.87 ± 0.18
TDS (mg/l)	376.77 ± 1.07	3.39 ± 0.02
Nitrogen (mg/l)	-	9 ± 0.6
Phosphorus (mg/l)	0.0952 ± 0.0091 *	102.6 ± 1.2
Nitrite (mg/l)	0.0037 ± 0.0001 *	-
Nitrate (mg/l)	0.0185 ± 0 *	-
Orthophosphates (mg/l)	0.0524 ± 0.0036 *	-
Ammonium (mg/l)	0.0103 ± 0.0003 *	-
Total hardness +	169 ± 1.4142 *	-
Calcium hardness	73 ± 4.2426 *	-
Alkalinity (mg/l)	300 ± 2 *	-

TDS (Total dissolved solids)

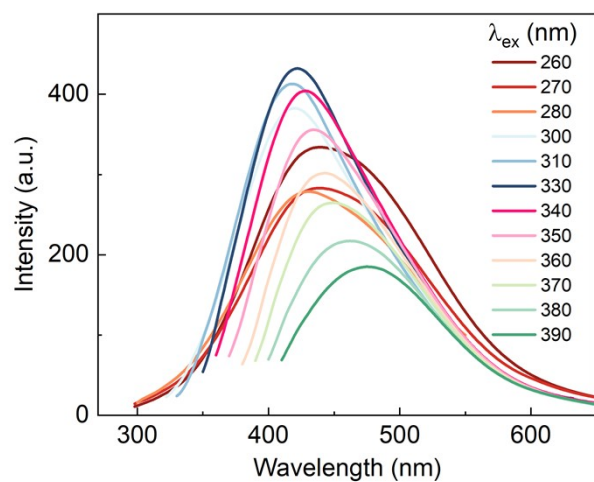
\*Determined according to APHA, AWWA & WEF test methods. Value parameters in accordance with NMX-001-SAGARPA-2021.

**Table S2.** Contaminants and micro/macro-nutrients detected by TXRF (Total reflection X-ray Fluorescence) in *E. crassipes* roots used as precursors for CDs and the Jovita lagoon water.

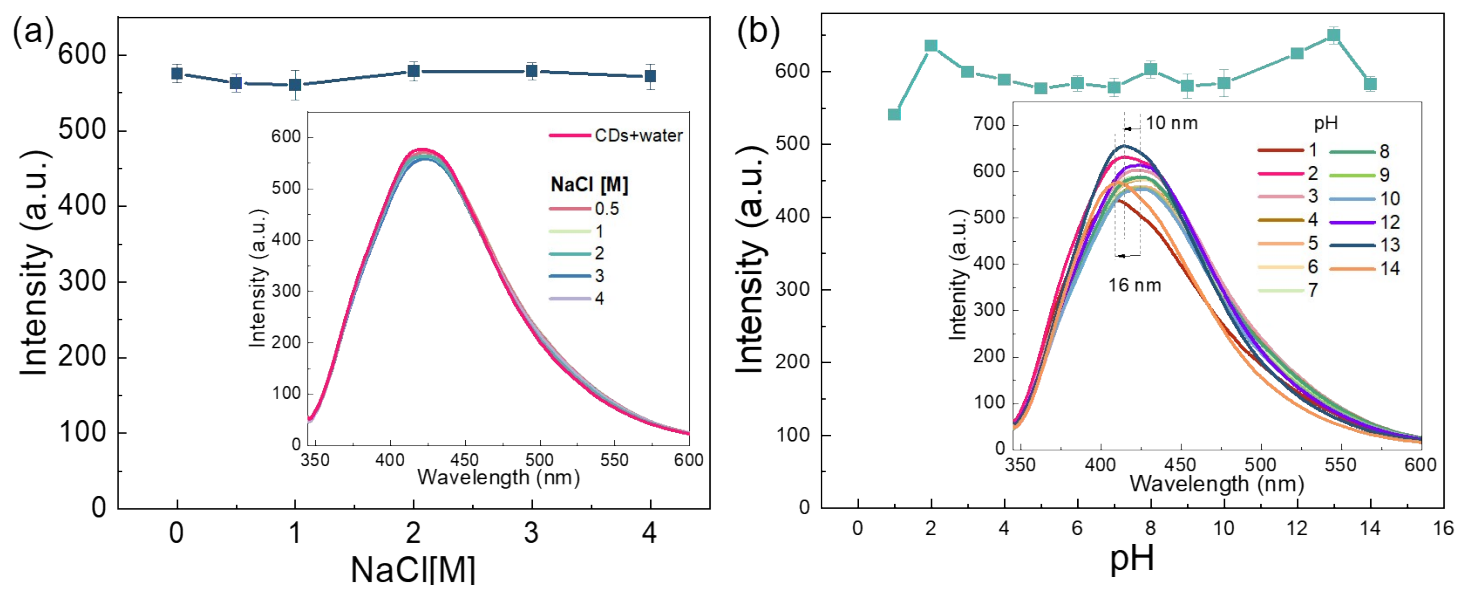
<b>Macronutrients</b>	<b>Polluted water (mg/l)</b>	<b><i>E. crassipes</i> roots (mg/l)</b>
Potassium	0.53 ± 0.16	116.09 ± 0.17
Calcium	13.25 ± 0.043	12.75 ± 0.035
Sulphur	8.65 ± 0.11	45.51 ± 0.16
Phosphorus	0.53 ± 0.16	11.60 ± 0.15
<b>Micronutrients</b>		
Iron	0.087 ± 0.003	0.127 ± 0.002
Zinc	0.031 ± 0.002	0.054 ± 0.001
Manganese	0.021 ± 0.004	0.006 ± 0.003
Copper	0.016 ± 0.002	0.064 ± 0.002
Chlorine	0.353 ± 0.051	8.746 ± 0.0062
Nickel	0.006 ± 0.002	0.022 ± 0.002



**Figure S1.** FESEM image of CDs-w dried on a silicon substrate and dried at 60°C.



**Figure S2.** Effect of excitation wavelength on the emission spectra of CDs-w.



**Figure S3.** Influence of (a) NaCl concentration and (b) pH in the PL of CDs-w.