

## Supporting Information

### Carbon Dots Using a Household Cleaning Liquid as a Dopant for Iron Detection in Hydroponic Systems

Robert G. Hjort<sup>†</sup>; Cicero C. Pola<sup>‡</sup>; Lisseth Casso-Hartmann; Diana C. Vanegas<sup>‡§</sup>; Eric

McLamore<sup>¶</sup>; Carmen L. Gomes<sup>†\*</sup>

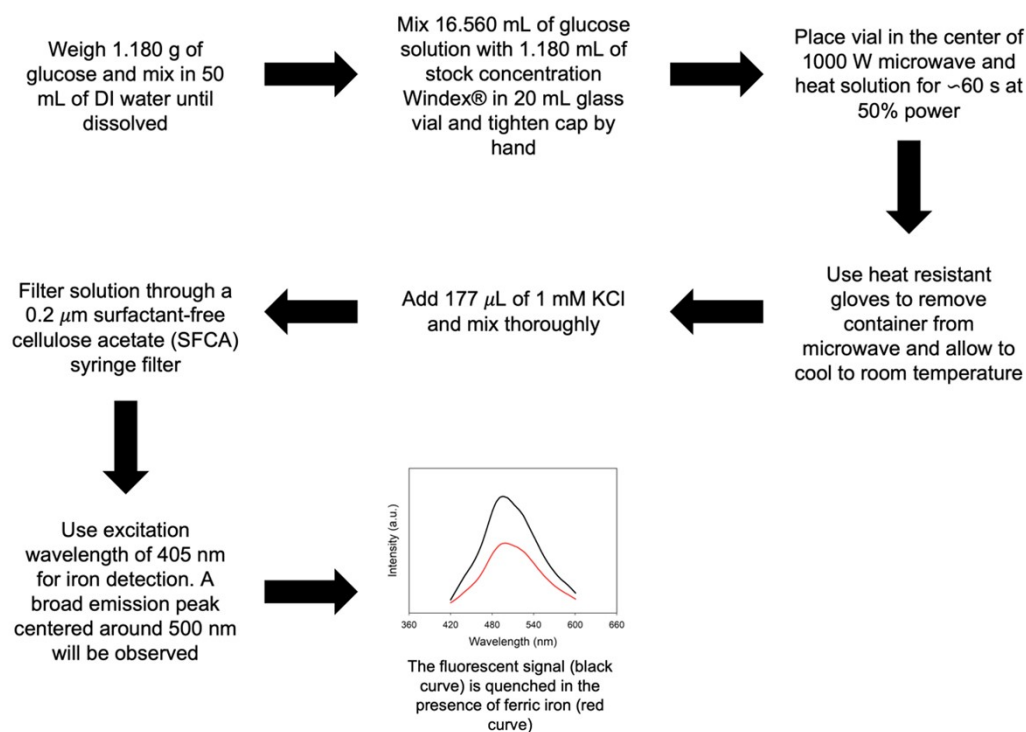
<sup>†</sup> Department of Mechanical Engineering, Iowa State University, Ames, IA, 50011, United States.

<sup>‡</sup> Department of Environmental Engineering and Earth Sciences, Clemson University, Clemson, SC, 29634, United States.

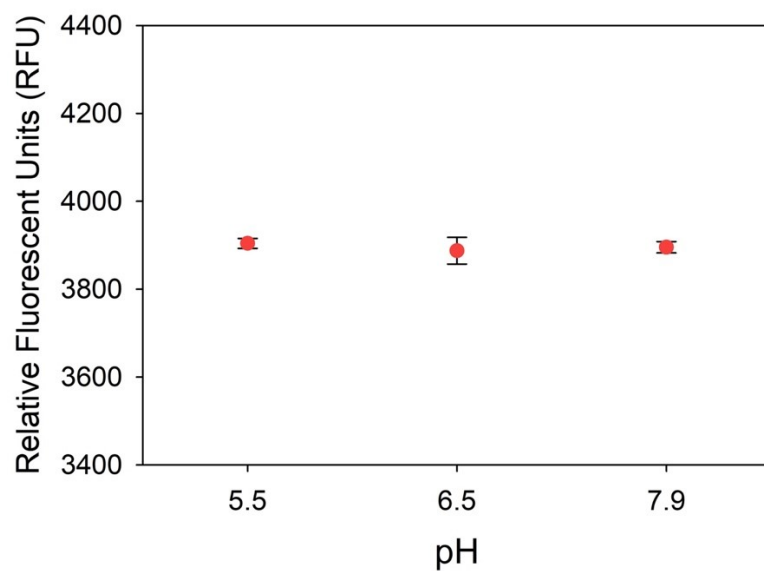
<sup>§</sup> Interdisciplinary Group for Biotechnology Innovation and Ecosocial Change (BioNovo), Universidad del Valle, Cali 76001, Colombia

<sup>¶</sup> Agricultural Sciences Department, Clemson University, Clemson, SC, 29634, United States.

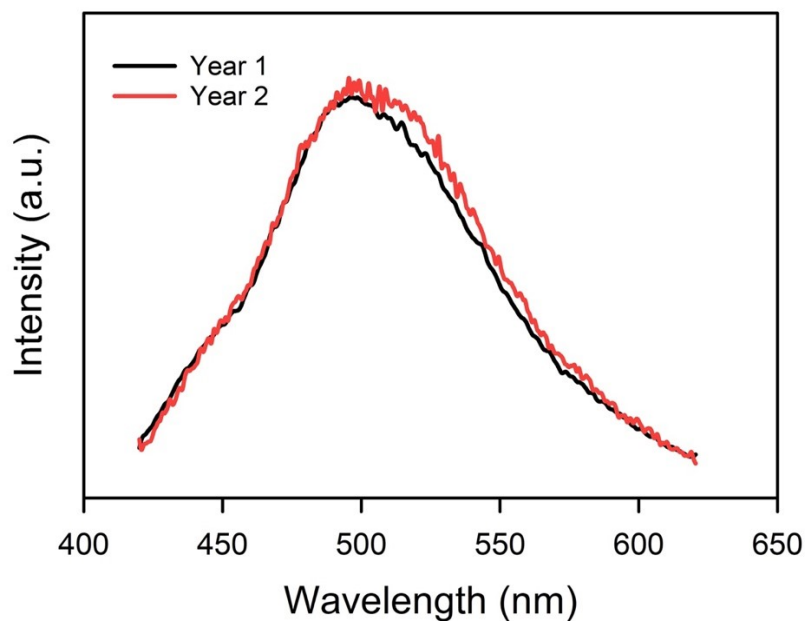
\*Corresponding author: [carmen@iastate.edu](mailto:carmen@iastate.edu)



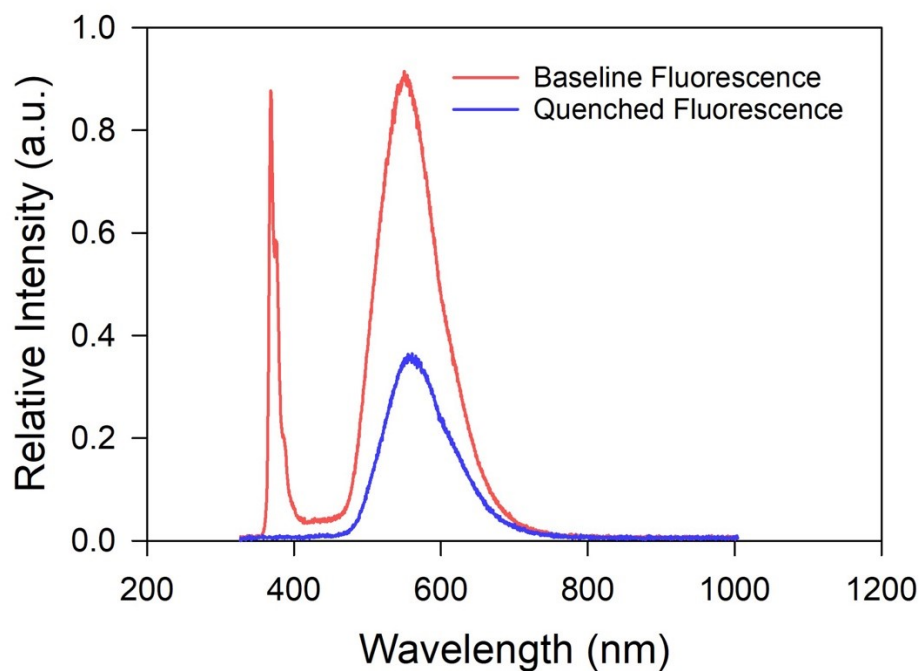
**Figure S1.** Flow-chart diagram detailing step-by-step production of the CDs and iron sensing.



**Figure S2.** Effects of pH on fluorescent intensity of the CDs at 25 °C showing statistically non-significant ( $p > 0.05$ ) changes at pH levels of 5.5, 6.5, and 7.9. Data represents mean  $\pm$  standard deviation ( $n = 3$ ).



**Figure S3.** Fluorescent emission curves of the CDs after storage in a dark drawer for 1 year (black curve) and 2 years (red curve).



**Figure S4.** CDs under 405 nm excitation using a portable Vernier spectrophotometer and a P400-2-UV-VIS fiber optic cable from Ocean Optics.

**Table S1.** Comparison of the CDs produced in this study versus other published works on iron sensing with CDs.

<b>Carbon Source</b>	<b>Production Method</b>	<b>LOD [<math>\mu</math>M]</b>	<b>Average Size [nm]</b>	<b>Quantum Yield [%]</b>	<b>Ref.</b>
Orange peel	Hydrothermal	0.073	2.60	4.29	[1]
Ginkgo biloba leaves	Hydrothermal	0.08	2.60	7.72	[1]
Paulownia leaves	Hydrothermal	0.1	2.60	4.74	[1]

Magnolia flower	Hydrothermal	0.088	2.60	8.13	[1]
Citric acid	Solvothermal	0.05	2.0 – 3.0	15	[2]
Orange peel	Hydrothermal	0.003	6.5	16.8	[3]
Wool keratin	Hydrothermal	0.113	2 – 6	8	[4]
Aspartic acid	Microwave-assisted pyrolysis	0.26	2.1	14	[5]
Citric acid	Hydrothermal	0.079	1.8	N/A	[6]
Glycerol	Thermal pyrolysis	0.016	6.1	45	[7]
D-glucose	Microwave-assisted pyrolysis	3.51	3.19	13	This work

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## References

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