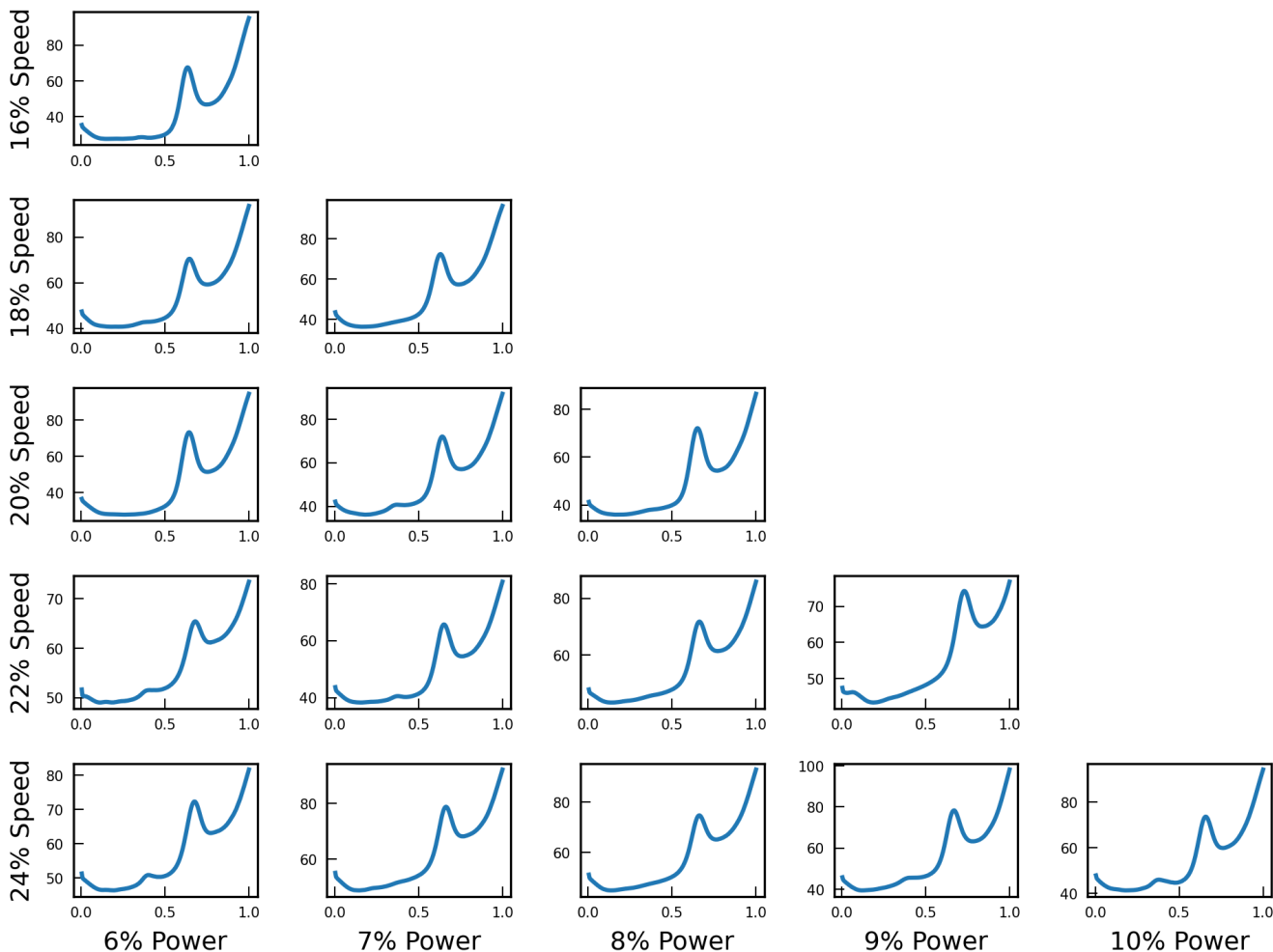


# Sustainable Agriculture with LEAFS: a Low-cost Electrochemical Analyzer of Foliage Stress: Supplementary Information

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## 1 Parameter optimization

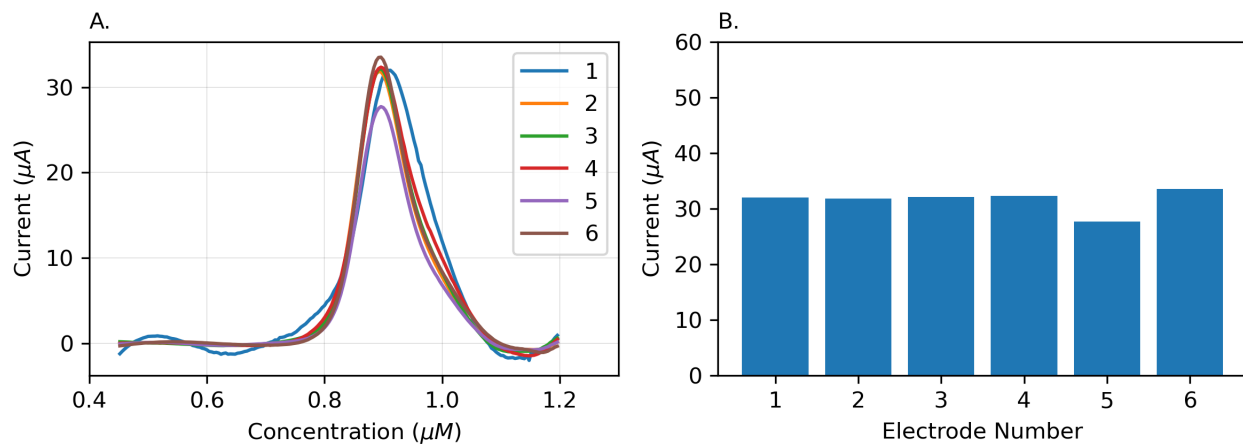
The raw data of square-wave voltammetry response of 200  $\mu\text{M}$  Salicylic acid (SA) in a Britton-Robinson buffer of pH 2.4 without any background subtraction is presented in SFig. 4. There is a small peak observed around 0.4 V which is not related to SA and could be a sign of contamination in certain batches of electrodes. However, it does not interfere with the SA peak and does not affect the sensor's performance.



SFig. 1 Raw data of square-wave voltammetry response in 200  $\mu\text{M}$  SA solution.

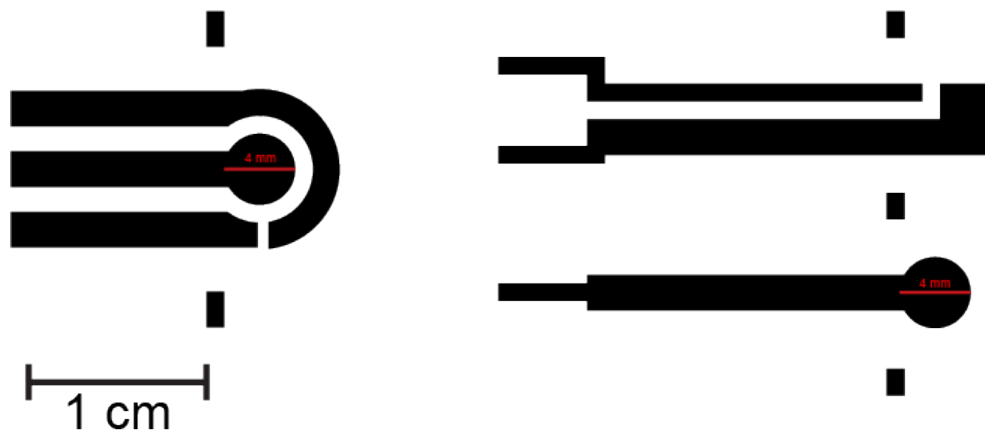
## 2 Reproducibility test using SA

A reproducibility test using a 200  $\mu\text{M}$  SA in a Britton-Robinson buffer of pH 2.4 has been conducted within six independently fabricated electrodes. The relative standard deviation across the electrodes is 6.29%.



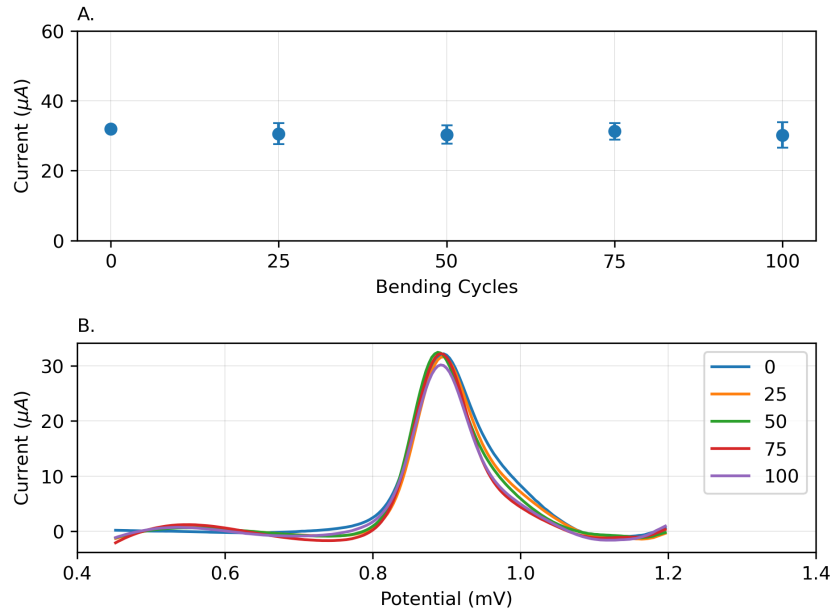
**SFig. 2** A. SWVs of 200  $\mu\text{M}$  SA in a Britton-Robinson buffer of pH 2.4 in six electrodes. B. The corresponding SA peak in six electrodes.

## 3 Electrode design



**SFig. 3** Designs used to fabricate the electrodes. Both of them has a circular working electrode with a diameter of 4 mm. The left and right designs are used for calibration, and in-situ measurements, respectively.

## 4 Flexibility test



**SFig. 4** A. The SA peak current of 200 µMSA in Britton-Robinson buffer of pH 2.4 in SWVs over the course of 100 bending cycles. B. The corresponding SWV waveforms after 0, 25, 50, 75, and 100 bending cycles.

## 5 Prior works

**STable. 1** Comparison of the reported electrochemical methods.

Sensor	Materials used	Technique	Linear range/µM	LOD/µM	Reference
GCE	graphene oxide	DPV	25–1400	10	1
GCE	Chitosan and Au@Fe <sub>3</sub> O <sub>4</sub>	DPV	1–1200	0.1	2
Disk graphite	polypyrrole and entrapment of banana tissue	DPV	0.1–100	0.089	3
CFE	NA	DPV	2–3000	1.68	4
ITO	Layer-by-layer films of carbon nanotubes, iron nanoparticles and PDAC	CV	6–100	0.105	5
SPCE	Anodized Carbon	SWV	16–300	5.6	6
SPCE	Carbon	DPV	1–200	1.6	7
Graphite SPE	ZnO/Al <sub>2</sub> O <sub>3</sub>	DPV	0.5–80	0.25	8
LIG	Graphene	LSV	0.5–500	0.16	9
LIG	Graphene/Nafion	SWV	6.6–200	1.44	This work

GCE: glassy carbon electrode; CFE: carbon fiber electrode; ITO indium thin oxide; SPCE screen-printed carbon electrode; PDAC poly(diallyl dimethylammonium) chloride; LIG: laser-induced graphene.

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