

Smart systems for N-compounds detection in irrigation water

Roberta Farina

Pillar 5 Precision Agriculture – Spoke 4/WP 5

**SAMOTHRACE 2nd Year:
Experimental Prototypes Demo Showcase**

SAMOTHRACE PROJECT ECS00000022

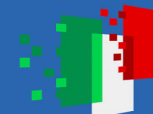
March 10th 2025



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

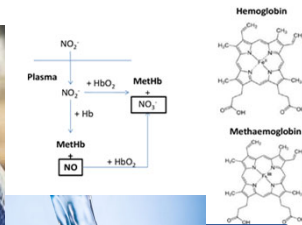
Smart systems for N-compounds detection in irrigation water



AIM OF THE ACTIVITY




NO_3^- 50 mg/l
 NH_4^+ 0.25 mg/l



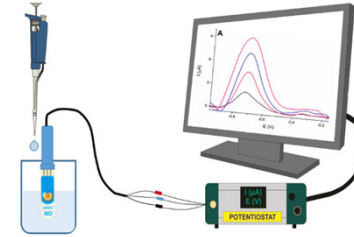
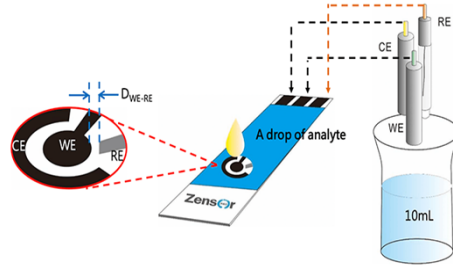
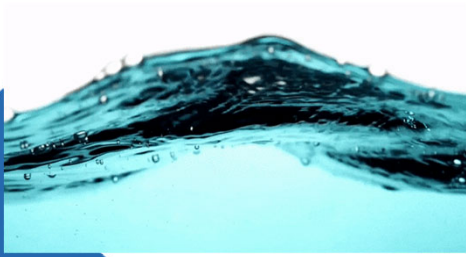
To monitor the level of nitrogen compounds in irrigation water to predict amounts and optimize fertilizer doses to be added

Global market for N-sensing, \$1.5–2.5 billion in 2023
Growth projection per year 6–9% through 2030

To monitor the level of nitrogen compounds in sanitized water

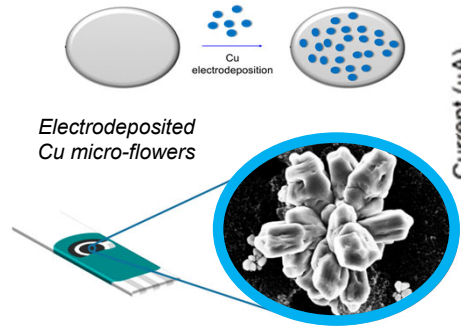
Smart systems for N-compounds detection in irrigation water

Electrochemical sensors using Screen Printed Electrodes (SPEs)

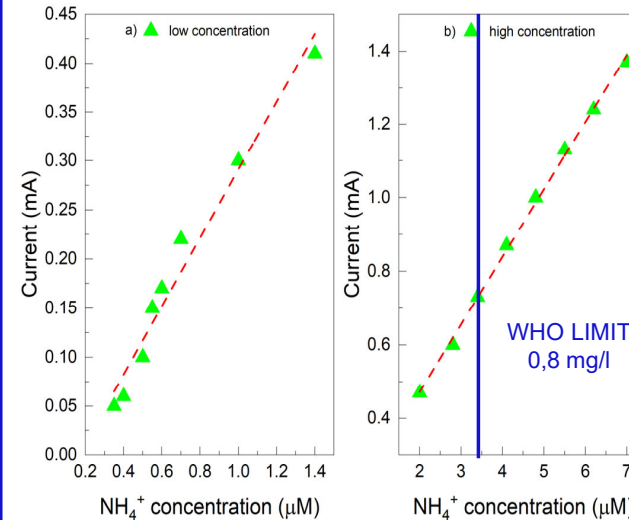
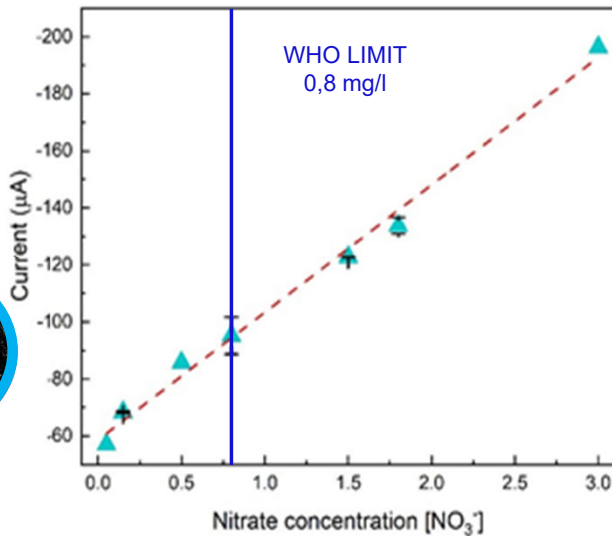


NO₃⁻ Sensor

From 0.05 to 3.00 mM [NO₃⁻]

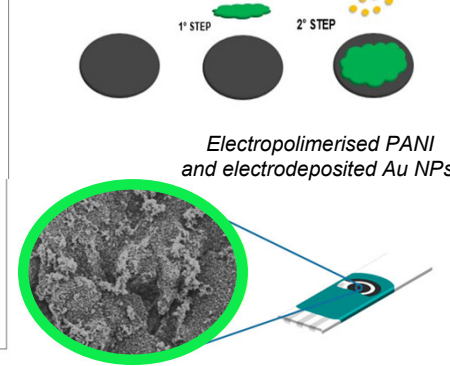


0.87 μM LoD



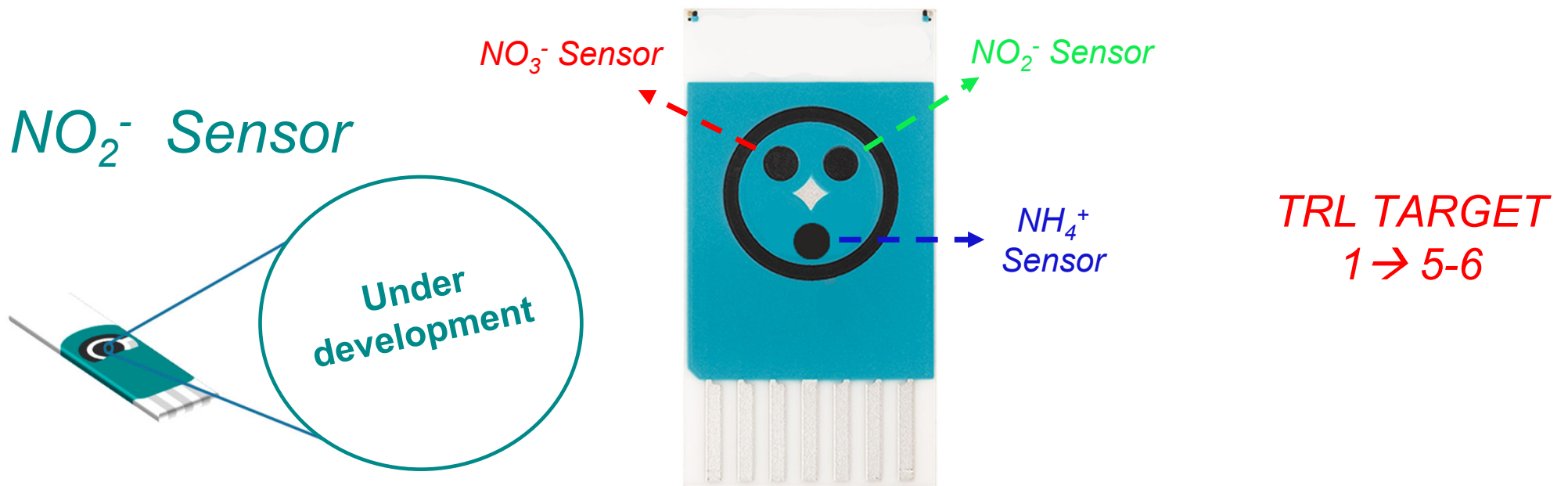
NH₄⁺ Sensor

From 0.35 μM to 7 μM [NH₄⁺]



0.03 μM LoD

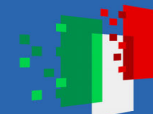
NEXT STEP UNDER SAMOTHRACE ECOSYSTEM



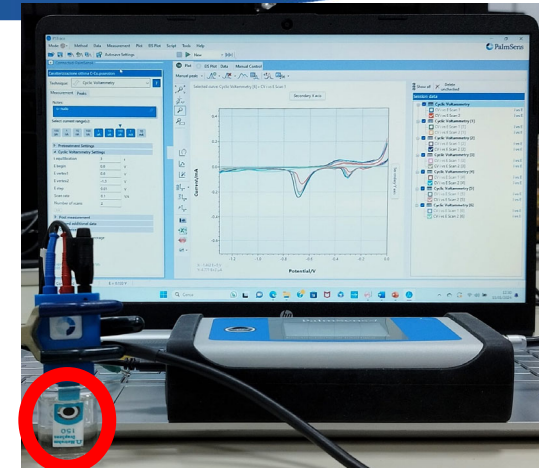
Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Thank you!

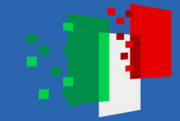
**VISIT OUR DEMO AT
BOOTH N. 62**



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA