

# Spent coffee grounds as suitable replacement for standard soil in ecotoxicological test guidelines

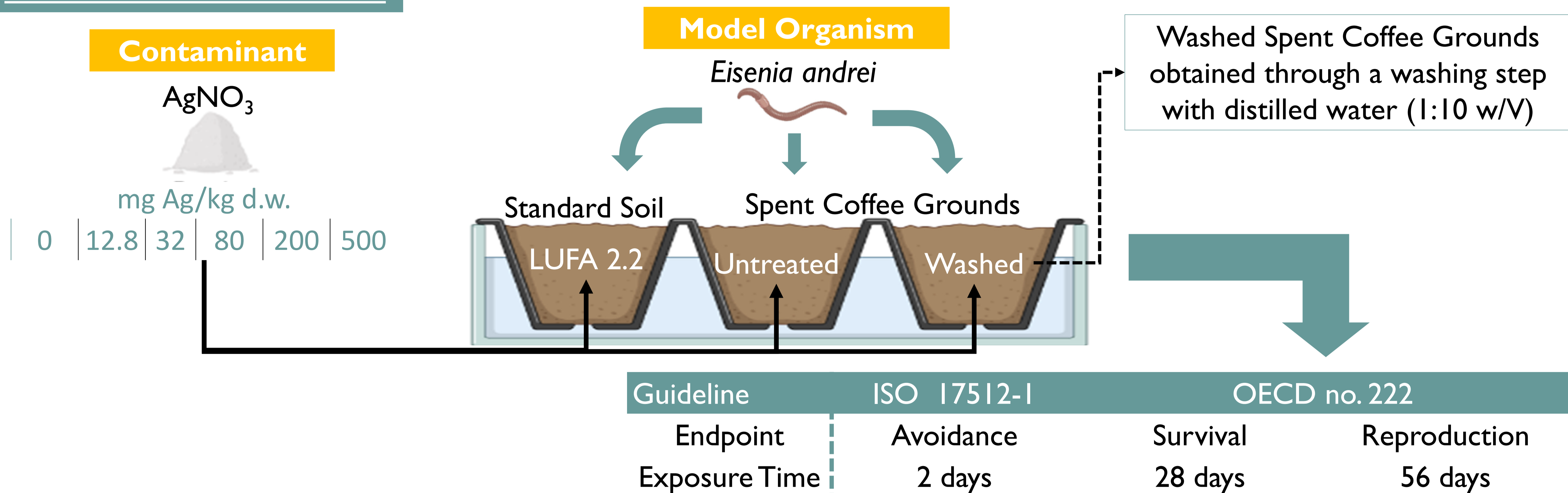
Luís André Mendes<sup>1</sup>, Jorge Domínguez<sup>1</sup>

<sup>1</sup> - Universidade de Vigo, GEA (Grupo de Ecología Animal), 36310 Vigo, Spain

## Introduction



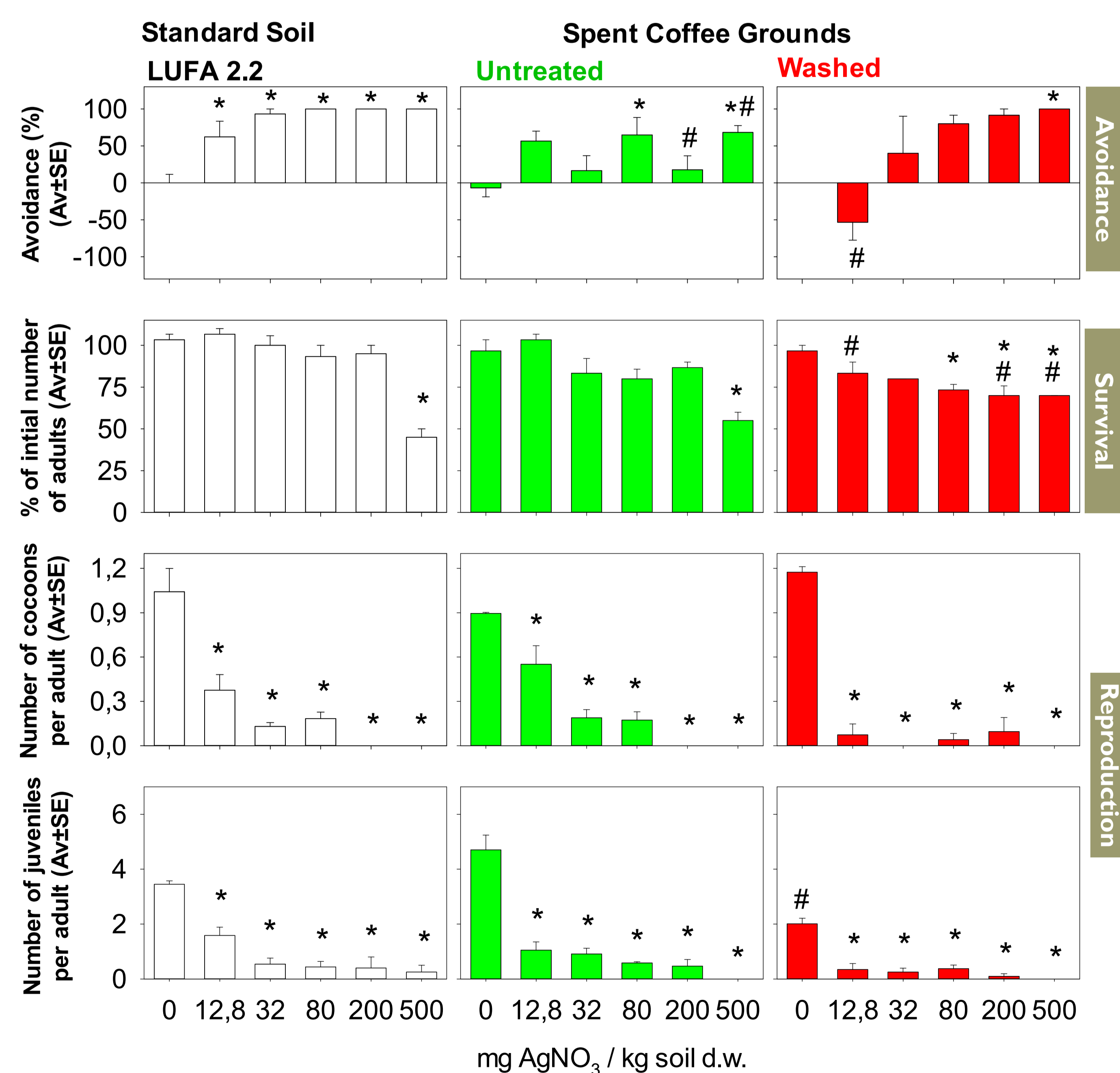
## Material & Methods



## Results

Estimated EC <sub>50</sub>	Standard Soil		Spent Coffee Grounds			
	LUFA 2.2	Model R <sup>2</sup>	Untreated	Model R <sup>2</sup>	Washed	Model R <sup>2</sup>
<b>Survival</b>	470 [402-550]	0.844	544 [377-712]	0.534	n.e.	
<b>Reproduction (juvenile/adult)</b>	9.6 [5.1-18]	0.912	3.8 [1.45-10.2]	0.918	3.02 [0.82-11.1]	0.881

- ✓ Hormetic effect was observed at 12.8 mg AgNO<sub>3</sub>/kg concentration in washed spent coffee grounds and no pattern was found in untreated spent coffee grounds.
- ✓ No significant difference were observed for survival and reproduction between standard soil and untreated spent coffee grounds in control and AgNO<sub>3</sub> treatments.
- ✓ The estimated 50% effect concentration (EC<sub>50</sub>) for LUFA 2.2 and untreated coffee grounds overlap.
- ✓ The number of juveniles per adult in control washed spent coffee grounds was significantly lower than in standard soil and in washed spent coffee grounds.



## Conclusions

- The **washing step** for spent coffee grounds **did not improve** conditions for long-term exposure.
- **Untreated spent coffee grounds** appear to be a **viable alternative** to LUFA 2.2 as substrate for OECD no. 222 guideline.
- **Studies at lower biological levels** and a full physical-chemical characterization of the substrate should provide further support to these findings.

## Aknowledgements

This research has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003954