

Supplementary Information

Solar water disinfection in large-volume containers: From the laboratory to the field. A case study in Tigray, Ethiopia.

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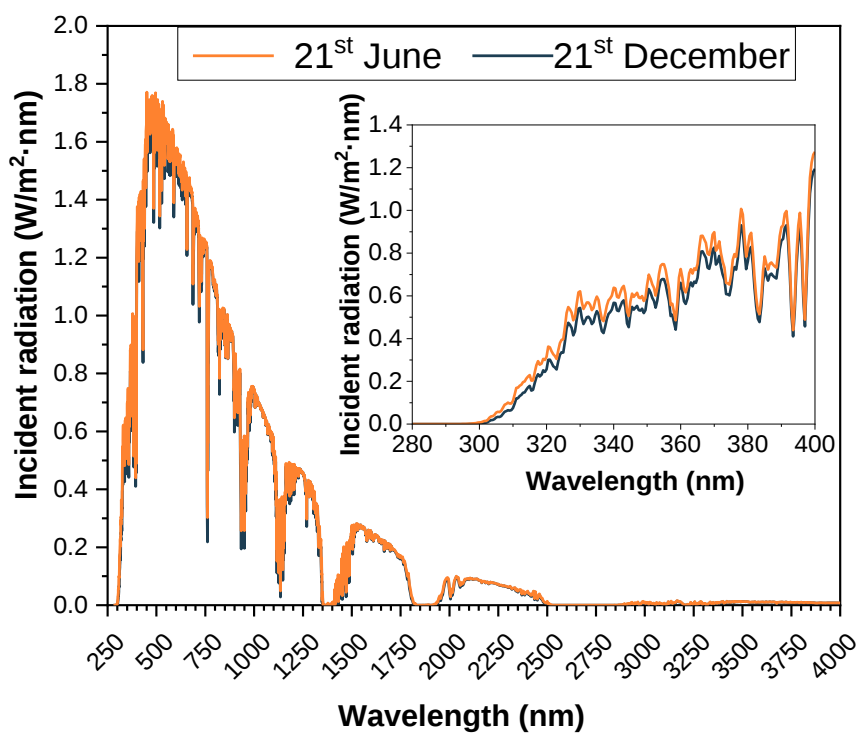


Fig. S1.A: Solar spectra in Tigray at successive solstices based on recorded historical (over the period 2011-2019).

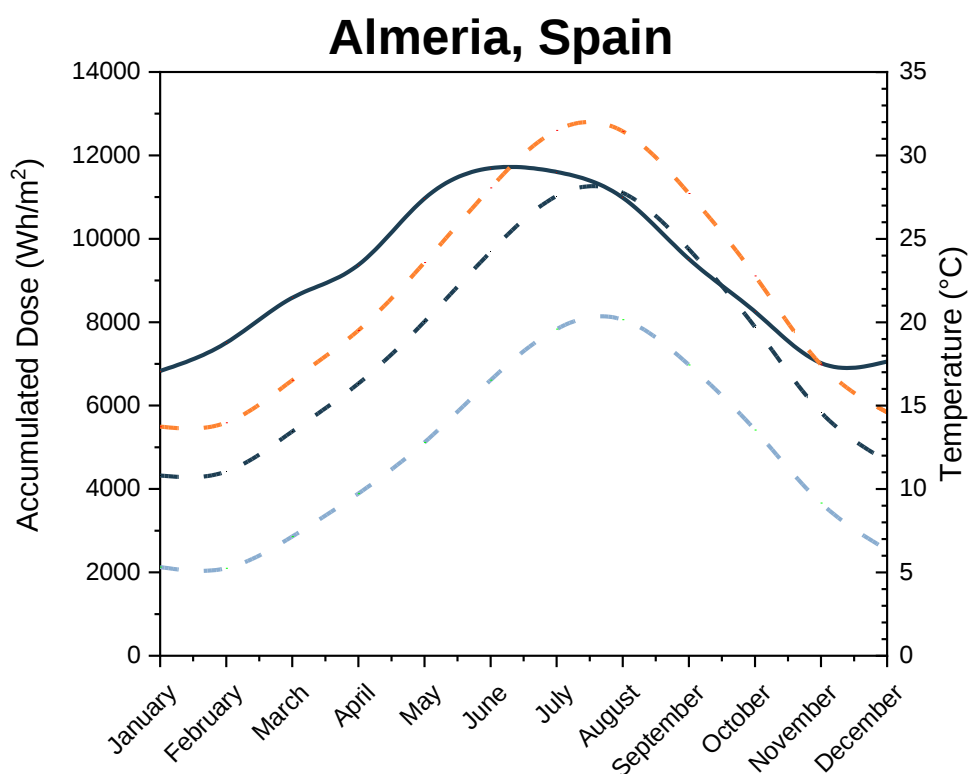


Fig. S1.B: Accumulated global dose in Almería (Spain) during the year. (solid line: accumulated global dose, dash line: maximum, average and minimum temperatures)

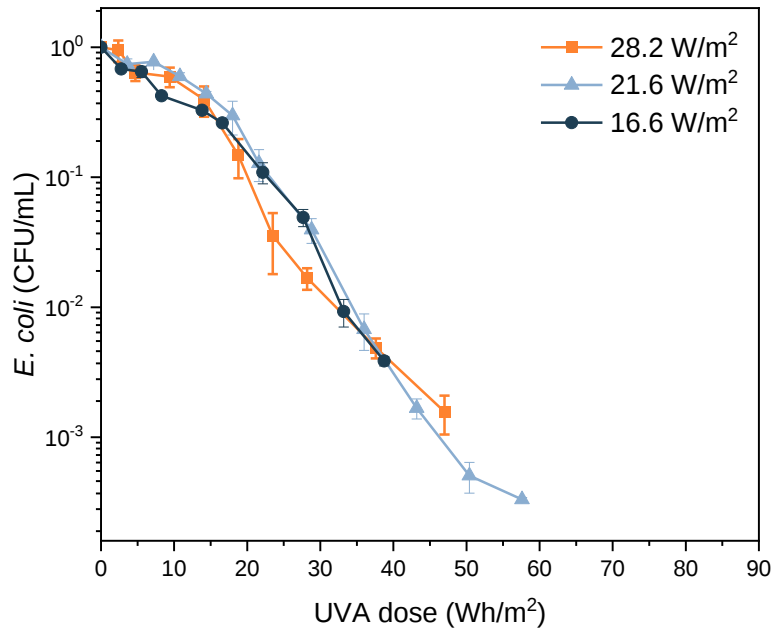


Fig. S2.A: *E. coli* inactivation profile with the UVA dose for different irradiances under controlled conditions for the 25 L PET TJC (Curves overlap since disinfection rate is normalised to the irradiance).

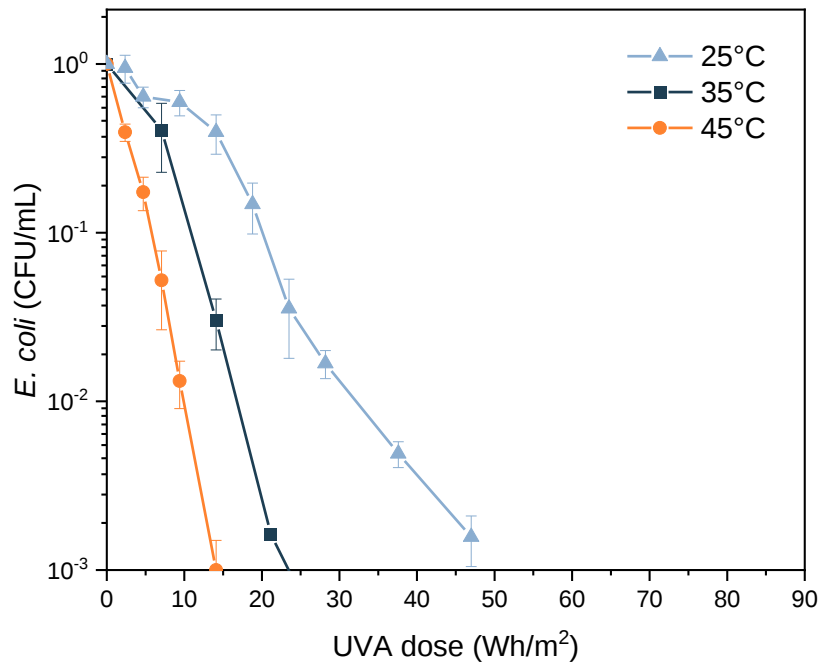


Fig. S2.B: *E. coli* inactivation profile with the UVA dose for different temperatures under controlled conditions of irradiance (28.2 W/m²) for the 25 L PET TJC.

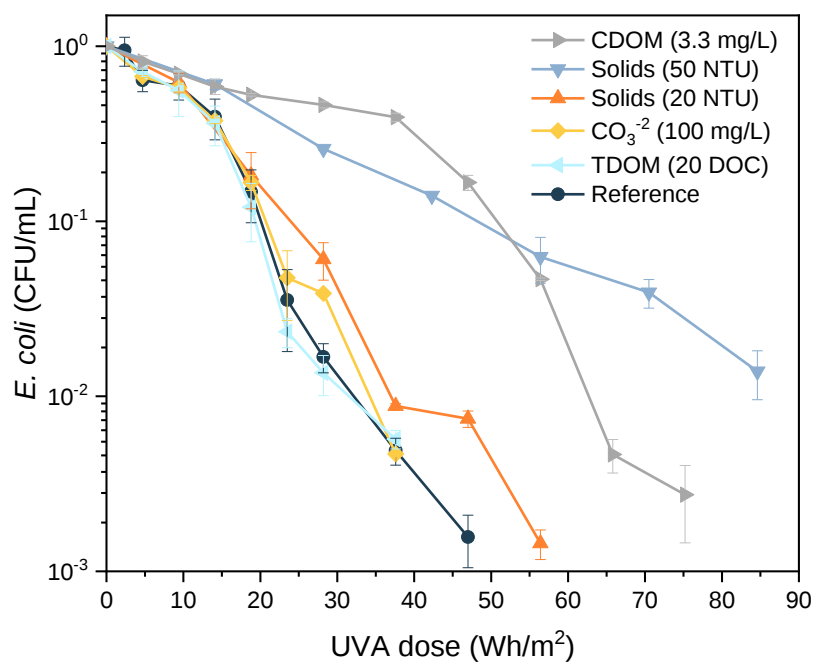


Fig. S2.C: *E. coli* inactivation profile with the UVA dose for different chemical water composition under controlled conditions of irradiance (28.2 W/m^2) and temperature (25°C) for the 25 L PET TJC.

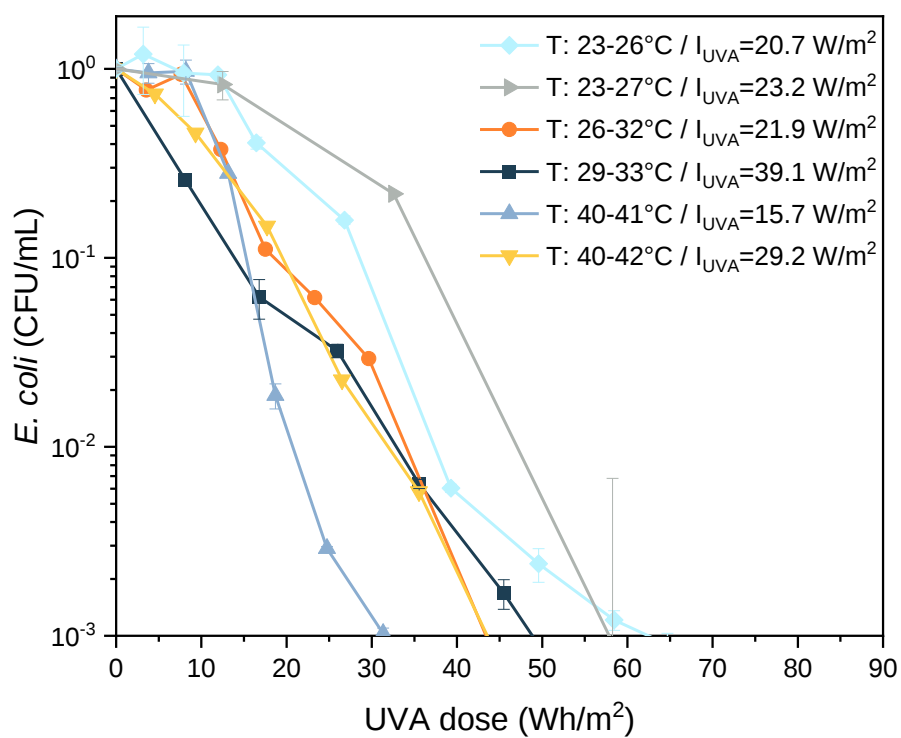


Fig. S3.A: *E. coli* inactivation profile with the UVA dose for diverse natural conditions.

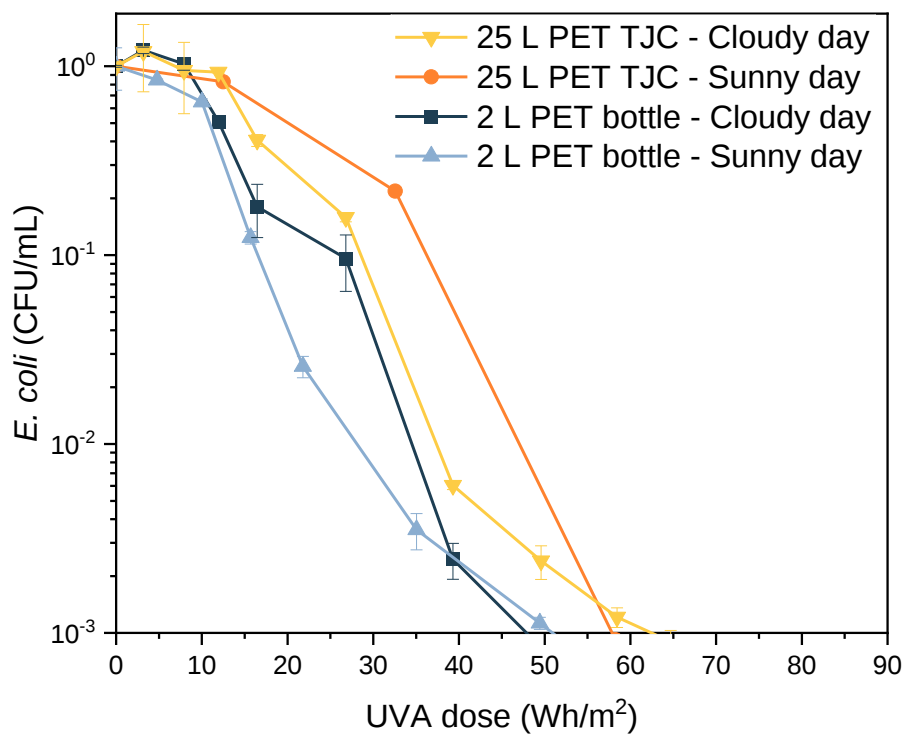


Fig. S3.B: Comparison of the *E. coli* inactivation profiles with the UVA dose in large-volume (25 L PET TJC) and small-volume (2 L PET bottles) containers under natural conditions

Table S1: UV and total solar irradiance at Tigray in solstices.

	Solstice of June	Solstice of December
UVB (280-329 nm) (W/m ²)	6.9	5.5
UVA (329-400 nm) (W/m ²)	51.7	47.3
Total (280-4000 nm) (W/m ²)	1071	1035

Table S2: Composition of well water used in experiments under real sunlight.

Ions (mg/L)	Concentration
Cl ⁻	38.15
NO ₂ ⁻	0.089
Br ⁻	0.262
NO ₃ ⁻	1.000
(PO ₄) ³⁻	0.848
(SO ₄) ²⁻	22.75
Na ⁺	50.81
NH ₄ ⁺	0.213
Ca ²⁺	1.045
K ⁺	9.460
Mg ²⁺	6.228
Conductivity (μS/cm)	364.5
Turbidity (NTU)	< 0.5 NTU

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Fig. S4: Example of a monthly diarrhoeal diary (using fictitious names and addresses) for the monitoring of diarrhoeal episodes in the field