

### 6.3 Makerere University: Certificate of Analysis

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**DEPARTMENT OF CHEMISTRY**

**CERTIFICATE OF ANALYSIS**

**Client:** SOLARSAC  
**Sample Matrix:** Spring water sample  
**Date of Report:** 25 August 2019  
**Report:** Efficiency of the SolarSac in water treatment with respect to E-coli contamination

**Table 1: Results for Kiwuunya spring water spiked with E-coli [ $3.9 \times 10^8$  CFU/L spiking]**

Parameter	Units	KW Spring water spiked with E-coli (Before treatment-0hr)	KW Spring water spiked with E-coli (After treatment-4hr)	KW Spring water spiked with E-coli (Control-4hr)
pH	-----	6.52	6.86	6.50
Electrical Conductivity	$\mu\text{S/cm}$	402.5	413.2	403.5
Turbidity	NTU	0.04	0.02	0.02
Dissolved oxygen (DO)	mg/L	7.2	6.5	7.1
Total dissolved solids (TDS)	mg/L	213.8	220.1	214.3
Alkalinity: Total as $\text{CaCO}_3$	mg/L	98.2	101.2	97.4
Residual Chlorine	mg/L	0.0	nd	0.0
Total Organic Carbon	mg/L	0.88	0.90	0.92
Temperature	$^{\circ}\text{C}$	24.2	28.1	24.8
E-Coli	CFU/100 ml	$4.9 \times 10^5$	0.0	$3.9 \times 10^5$

**Table 2: Results for Kiwuunya spring water spiked with Katanga Channel water [20 ml/L spiking]**

Parameter	Units	KW Spring water spiked with Katanga (Before treatment-0hr)	KW Spring water spiked with Katanga (After treatment-4hr)	KW Spring water spiked with Katanga (Control-4hr)
pH	-----	6.55	6.96	6.54
Electrical Conductivity	$\mu\text{S/cm}$	408.1	415.7	410.3
Turbidity	NTU	0.24	0.20	0.26
Dissolved oxygen (DO)	mg/L	7.0	6.2	6.9
Total dissolved solids (TDS)	mg/L	216.5	221.8	217.6
Alkalinity: Total as $\text{CaCO}_3$	mg/L	98.7	110.2	100.9
Residual Chlorine	mg/L	0.0	nd	nd
Total Organic Carbon	mg/L	2.2	1.8	1.9
Temperature	$^{\circ}\text{C}$	23.8	30.2	24.2
E-Coli	CFU/100 ml	$1.6 \times 10^5$	1.0	$3.4 \times 10^4$