Electronic Supplementary Material (ESI) for Lab on a Chip.

Electronic Supplementary Information (ESI)

Low cost microfluidic thread-based electroanalytical device

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Table S1. Materials cost estimation for a single µTED

Material	Quantity used per device	Cost per device ($)
Glass plate	30 cm	0.25
Double sided tape	5 cm	0.07
Cylindrical graphite	3 piece (1.5 graphite)	0.06
Hydrophilic cotton gauze	1 piece (12 mm^2)	0.0003
Hydrophilic cotton thread	9 cm (27 mm^2)	0.001
Polymeric reservoirs	2 units	0.01
Total		0.39

Table S2. Analytical characteristics of the µTED – MPA method.

Characteristics	**DCF**	**ACT**
Linear range (µmol L^{-1})	10 – 320	10 – 320
Correlation coefficient	0.9988	0.9936
Slope (nA µmol^{-1} L)	1.8227	0.8486
Intercept (nA)	-8.34	6.87
LOD (µmol L^{-1})	1.43	2.49
LOQ (µmol L^{-1})	4.77	8.30
Analytical frequency (injections per hour)	45	45
RSD	2.95 %	2.81%

Table S3 – Comparison of LOD and linear range for determination of ACT and DCF

Specie	LOD / µmol L^{-1}	Linear range µmol L^{-1}	Device/Technique
ACT	0.3	0.35 – 100	Microfluidic device/Amperometric detection[39]
ACT	25.0	50 – 2000	Microfluidic device/Amperometric detection[40]
ACT	1.94	331 - 1656	Batch injection analysis/MPA[41]
ACT	1.72	-	Batch injection analysis/MPA[42]
ACT	1.43	10 - 320	This work
DCF	11.0	10 - 50	Batch injection analysis/MPA[43]
DCF	0.14	5 - 50	Flow injection analysis /MPA[44]
DCF	2.49	10 - 320	This work

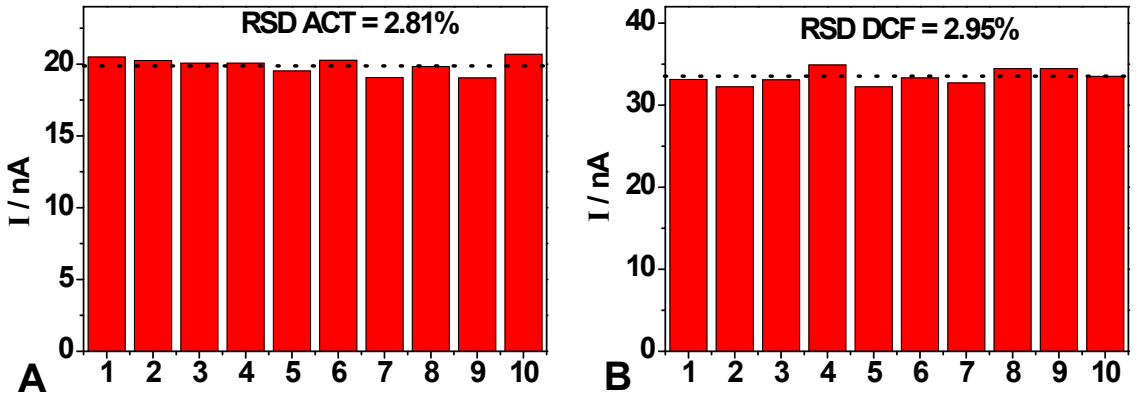

Fig. S1 Current values for (A) ACT and (B) DCF, obtained in the μTED by MPA for injection (n = 10) of PBS 0.10 mol L^{-1} pH 7.00 containing a mixture of 20 μmol L^{-1} DCF + 20 μmol L^{-1} ACT. The horizontal dashed line indicates the average value of currents obtained. Applied potential pulses: 0.25 V / 500 ms and 0.50 V / 500 ms; Sample injection volume: 2 μL.