

Supplementary materials

A Microfluidic Paper-Based Analytical Device for Type-II Pyrethroid Targets in an Environmental Water Sample

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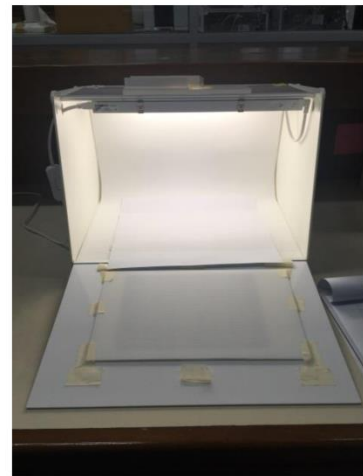
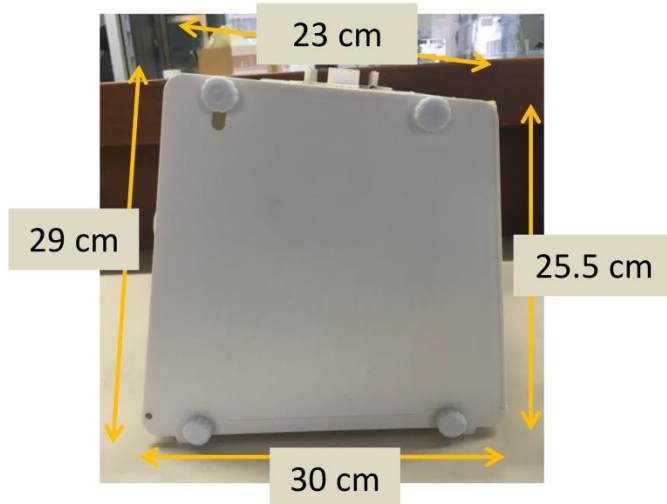
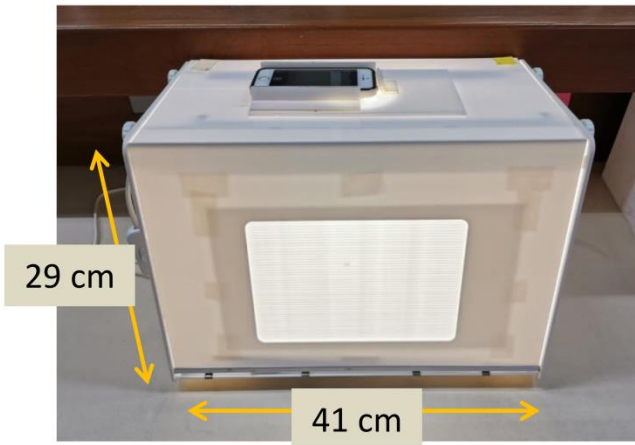
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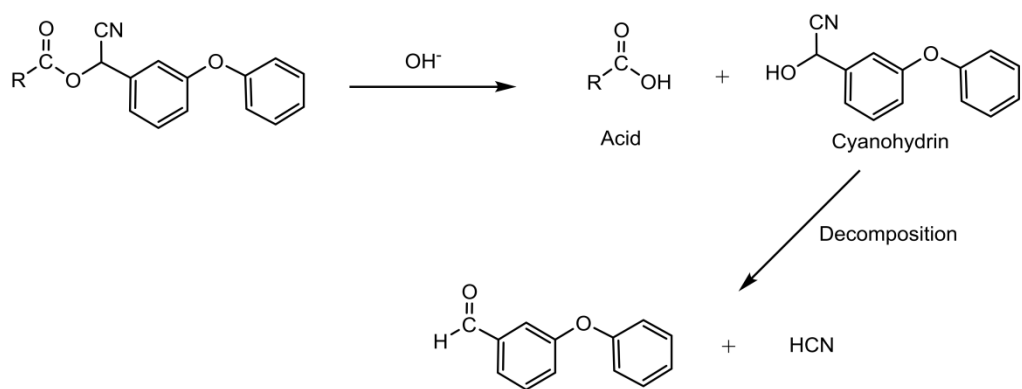
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Brand	Sanoto MK40
Box material	ABS + PMMA
Type of light	Fluorescent
Color temperature	5500 K
Voltage	AC 220V
Frequency	50-60 Hz
Distance between smartphone and the device	21 cm

Figure S1. The pictures of a controlled-light box and the specifications of the light.



Name	Alkyl group (R-)	Name	Alkyl group (R-)
Cypermethrin		Cyhalothrin	
Deltamethrin		Fenvalerate	

Figure S2. Schematic diagram of the hydrolysis reaction of Type-II pyrethroids.

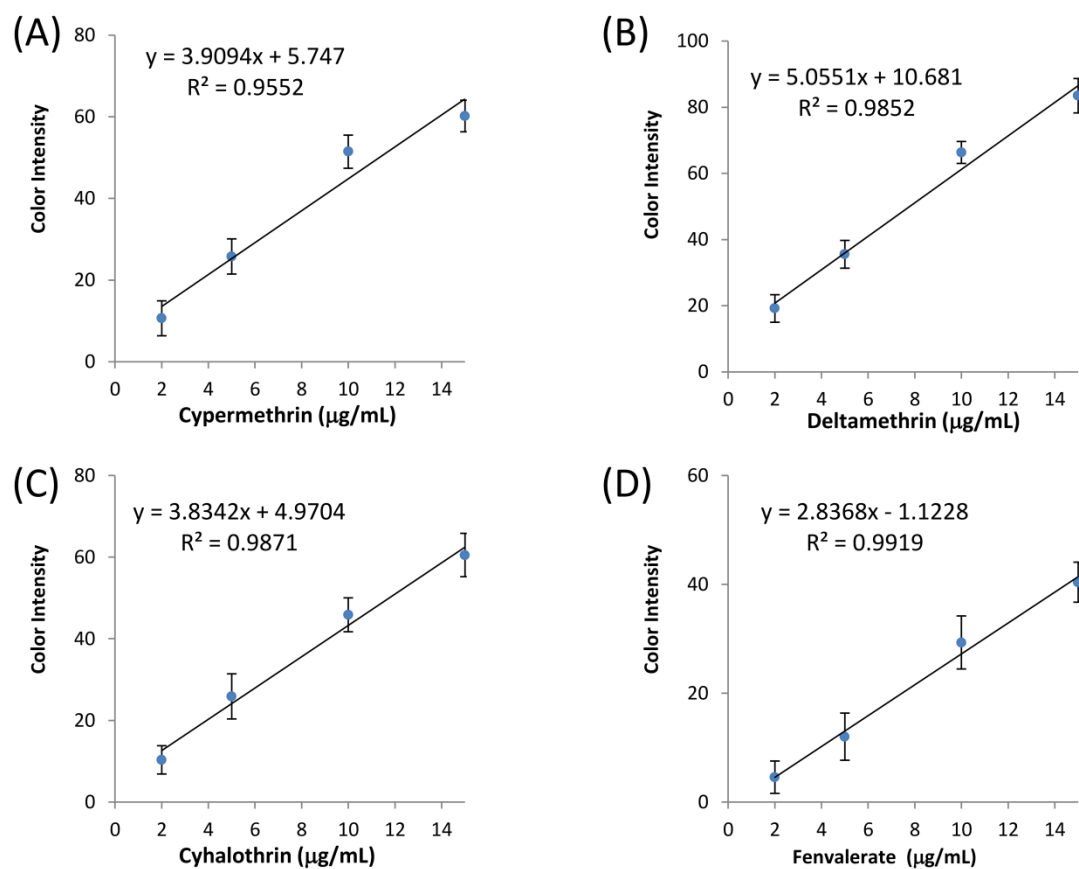


Figure S3. Linear calibration graph of type-II pyrethroids in a range of 2 - 15 $\mu\text{g/mL}$.
(A) Cypermethrin, (B) Deltamethrin, (C) Cyhalothrin, (D) Fenvalerate.

Table S1. Limit of detection analysis for type-II pyrethroids

Step	Value	Result				domain
		Cypermethrin	Deltamethrin	Cyhalothrin	Fenvalerate	
1	L _C	9.15	9.15	9.15	9.15	signal
2	σ _{test}	3.67	4.41	4.83	4.06	signal
3	L _D	15.17	16.38	17.08	15.81	signal
4	Calibration curve	$Y = -0.0528x^2 + 4.7303x + 3.6801$	$Y = -0.0695x^2 + 5.6668x + 10.479$	$Y = -0.0659x^2 + 4.9483x + 1.9016$	$Y = -0.0319x^2 + 3.2994x - 2.0758$	Signal-to-concentration
5	LOD	2.50	1.06	3.20	5.73	concentration (μg/mL)