

A pocket-size device for monitoring gaseous elemental mercury by passive sampling on a Nano-Au screen-printed electrode and detection by single drop smartphone-controlled voltammetry.

(Supplementary Material)

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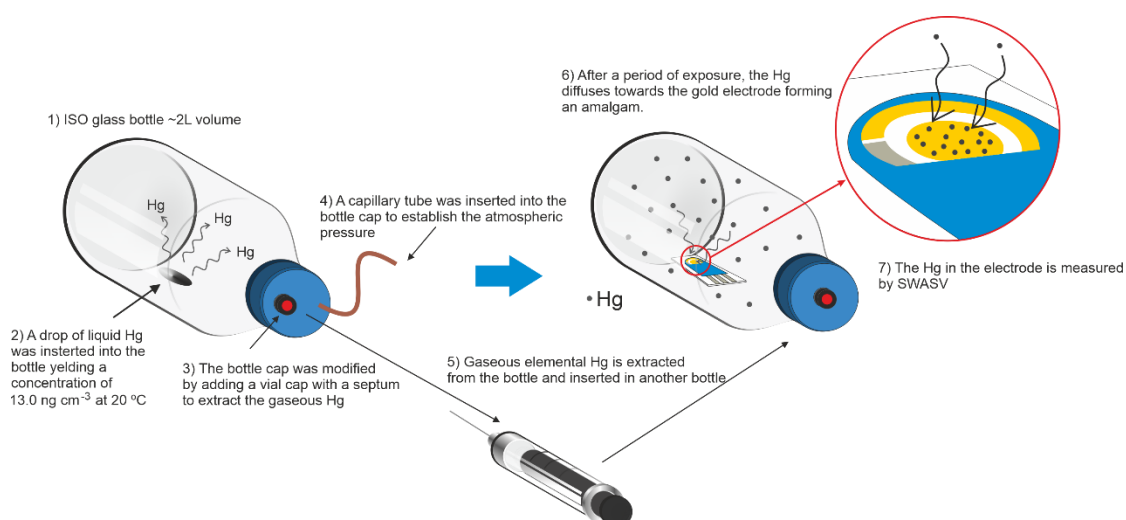


Fig. S1. General schematic of the GEM sampling procedure using AuNPs-SPCE. Figure modified from [36].

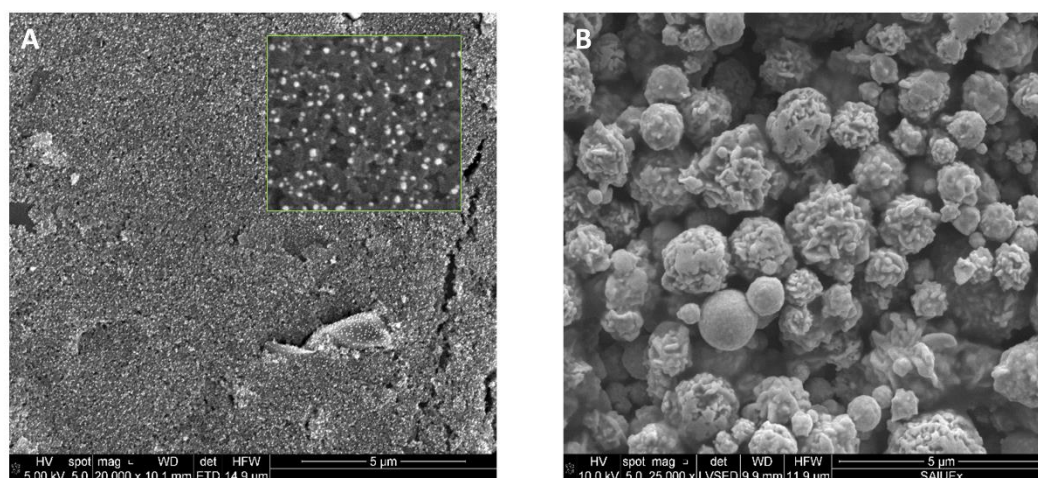


Fig. S2. Scanning Electron microscope (SEM) images for A) commercial AuNPs-SPCE, B) commercial LT-SPGE.

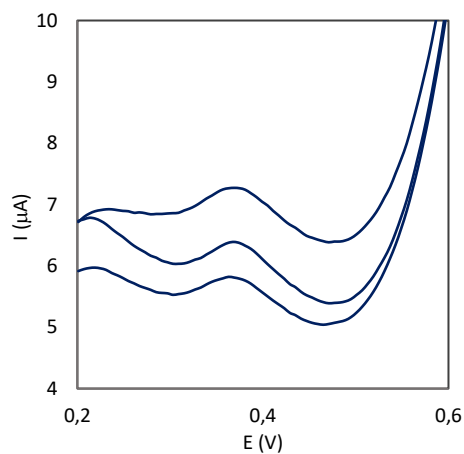


Fig. S3. Voltammetric curves for 0.228 ng dm^{-3} GEM solutions on the AuNPs-SPCE exposed for 180 min. Step potential 6 mV, amplitude 40 mV, initial potential 0.1 V, final potential 0.65 V and frequency 30 Hz.

Table S1. Analytical features of the developed method and several passive methods employed for detection GEM in ambient air.

Analytical method	Adsorbent material	Sampling time (min)	Linear range (ng dm^{-3})	Detection limit (ng dm^{-3})	Reference
CVAAS	Activated carbon	21,600	-	0.009	[40]
CVAAS	TiO ₂ NP/ AuNP	15	3.43 – 68.59	-	[15]
CVAAS	Activated carbon	480	0.001 – 10	0.007	[19]
Electrochemical	Au	30	5.82 – 56.39	5.57	[36]
Electrochemical	AuNPs	10	5.88 – 56.39	2.41	This work
Electrochemical	AuNPs	180	0.23 – 5.69	0.24	This work