Electronic Supporting Information

Application of a simple copper(II) complex compound as an epinephrine selective voltammetric sensor in the presence of uric acid in aqueous conditions

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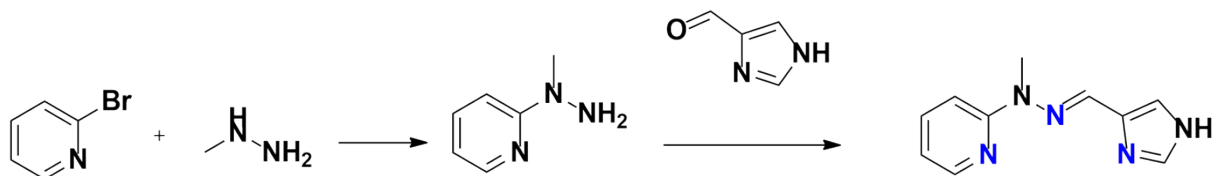## 1. Synthesis and physical characterization

Fig. S1. Scheme of ligand L [$C_{10}H_{11}N_5$] synthesis.
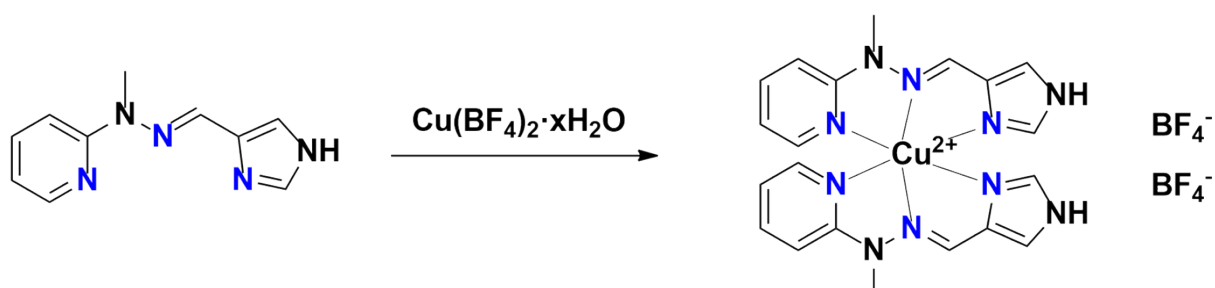

Fig. S2. Scheme of copper(II) complex [CuL_2](BF_4)$_2$ synthesis.
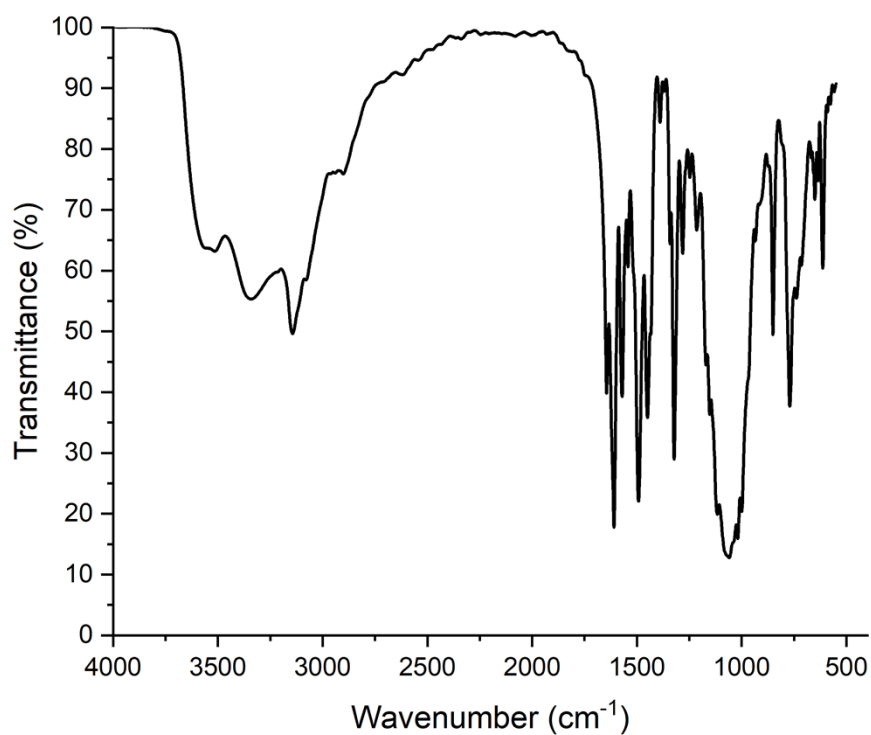

Fig. S3. FT-IR spectrum of copper(II) complex [CuL_2](BF_4)$_2$.
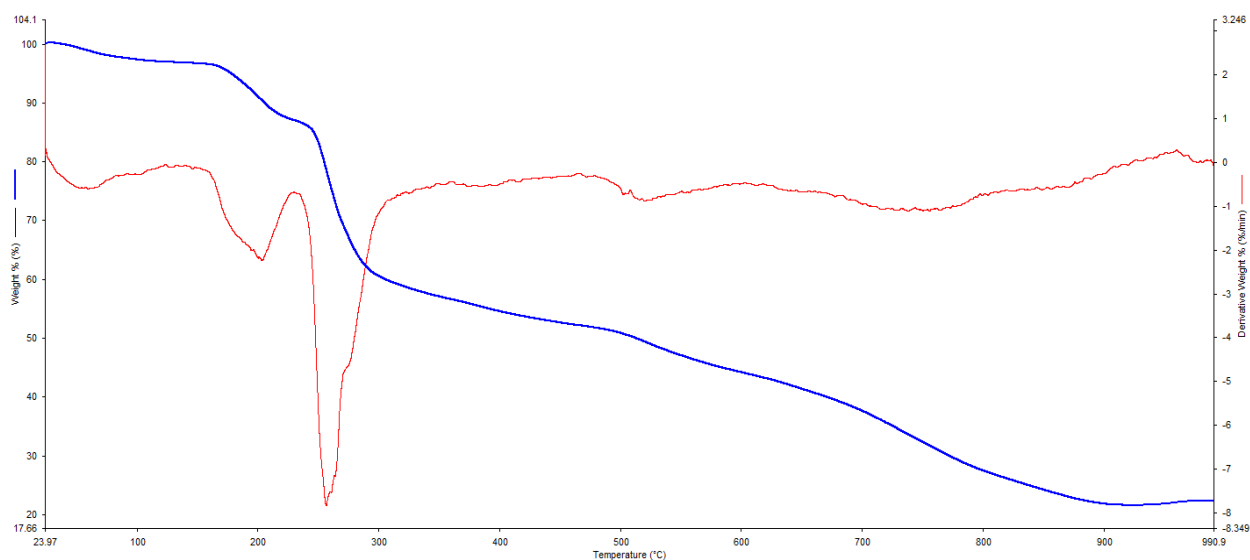
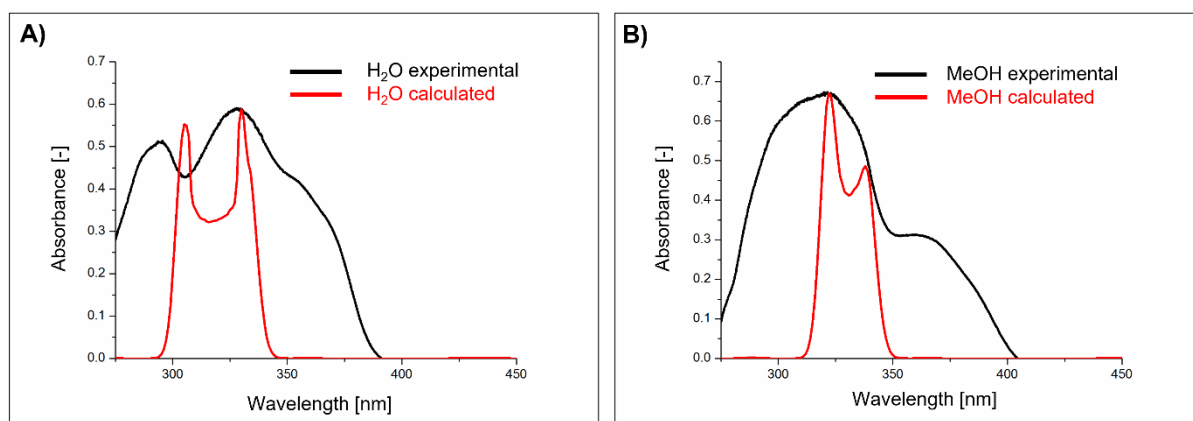**Fig. S4**. Thermogravimetric analysis of compound **1**.

Fig. S5. Comparison of experimentally measured and theoretically calculated UV-Vis spectra of CuL_2 in water (A) and methanol (B), at the CAM-B3LYP/6-311+G(2d,p)/CPCM level.

2. Crystallographic studies

Table S1. Crystal data, data collection and structure refinement.

Compound	**CuL$_2$**
Formula	C$_{20}$H$_{22}$CuN$_{10}$$^{2+}$·2BF$_4$$^-$·CH$_3$OH·O(C$_3H_7$)$_2$
Formula weight	773.85
Crystal system	monoclinic
Space group	P2$_1$/n
a(Å)	12.4491(4)
b(Å)	13.8403(3)
c(Å)	19.8972(6)
β(º)	97.153(3)
V(Å^3)	3401.59(17)
Z	4
D$_x$(g cm^{-3})	1.511
F(000)	1596
μ(mm^{-1})	0.729
Reflections:	
collected	19089
unique (R$_{int}$)	6945 (0.0401)
with I>2σ(I)	4856
R(F) [I>2σ(I)]	0.0692
wR(F^2) [I>2σ(I)]	0.1582
R(F) [all data]	0.1054
wR(F^2) [all data]	0.1777
Goodness of fit	1.042
max/min Δρ (e·Å^{-3})	1.91/-0.80
CCDC deposition	2346925

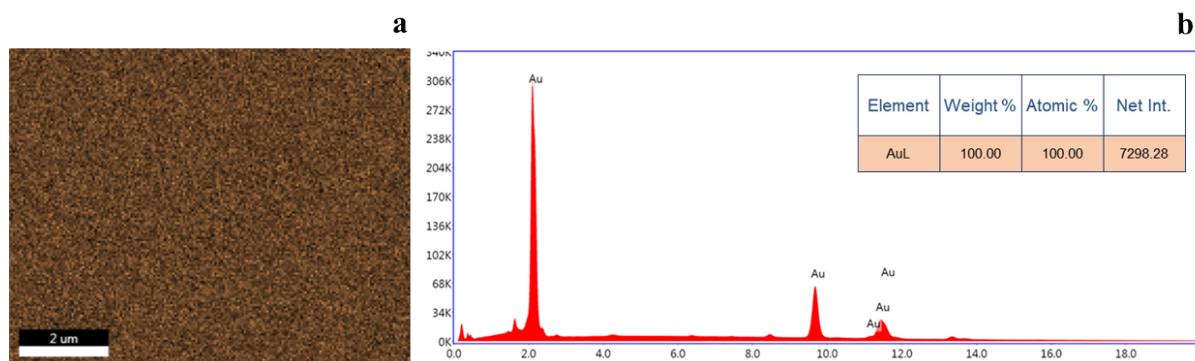### 3. Characterization of the bare gold electrode

Fig. S6. (a) EDAX analysis of the bare Au electrode (2 µm) and its (b) X-ray energy dispersion
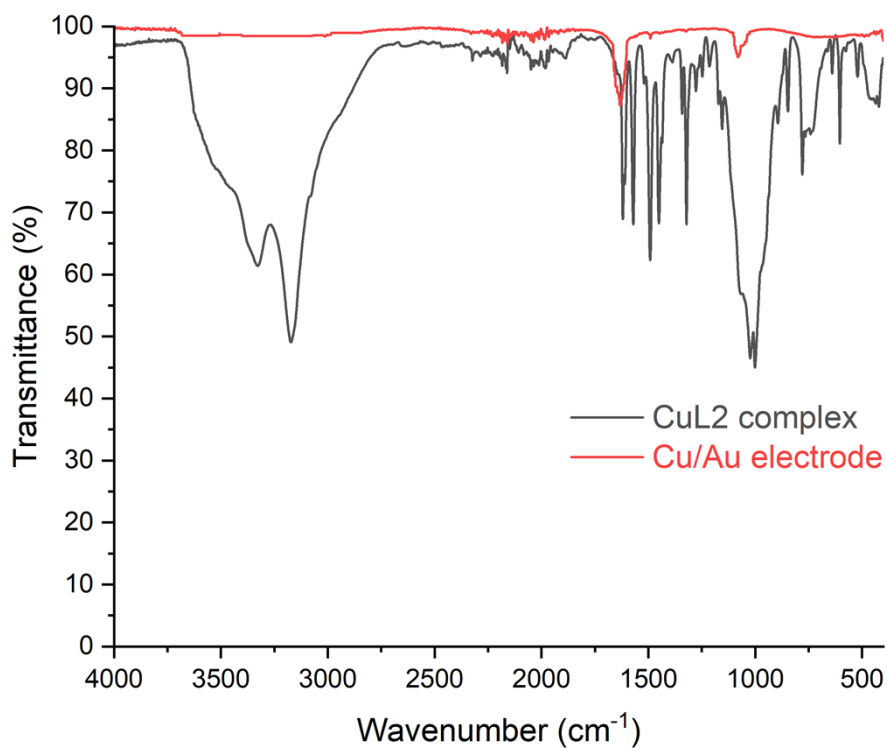
spectrum.

Fig. S7. Comparison of ATR-IR spectra of the CuL_2 complex and Cu/Au electrode.
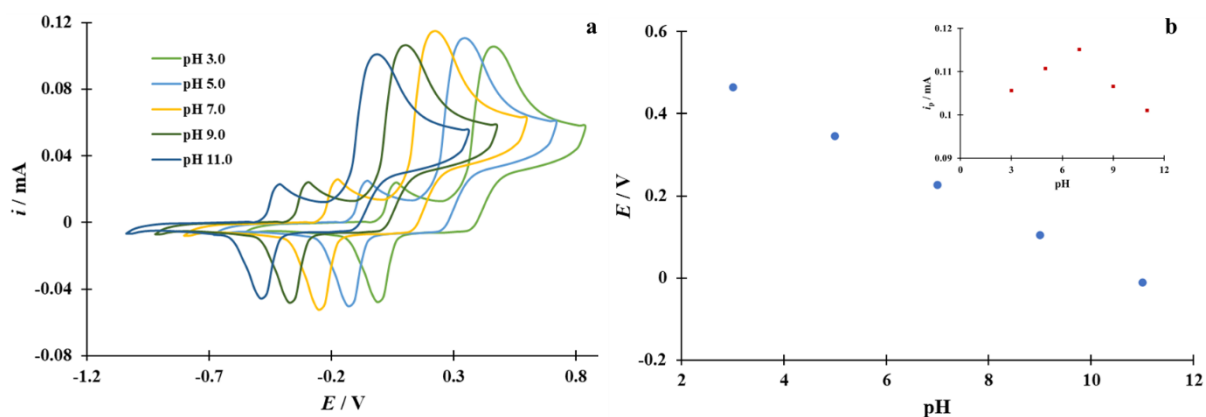
4. Electrochemical experiments

Fig. S8. (a) CVs of the Cu/Au electrode in supporting electrolyte solution at various pH in the range from pH 3.0 = pH 11.0 in the presence of 0.5 mM EP, $dE/dt = 0.1$ Vs^{-1}. (b) Effect of pH on the peak potential during EP electrooxidation. Insert: effect of pH on the peak current.

Table S2. Determination of EP in the presence of UA (n = 3) at the Cu/Au electrode.

Initial amount [mM]		Spiked amount [mM]		Found amount [mM]		Recovery [%]		RSD [%]	
EP	UA	EP	UA	EP	UA	EP	UA	EP	UA
0.100	0.50	0	0	0.102	0.49	102.0	98.0	2.0	1.8
0.100	0.50	0.01	0	0.111	0.51	100.9	102.0	1.9	1.9
0.100	0.50	0.03	0	0.133	0.48	99.3	96.0	2.6	1.8
0.100	0.50	0.05	0	0.148	0.51	98.7	102.0	1.6	2.2
0.50	0.50	0	0.1	0.52	0.59	104.0	98.3	2.2	1.7
0.50	0.50	0	0.3	0.48	0.84	96.0	105.0	1.6	1.5
0.50	0.50	0	0.6	0.49	1.14	98.0	103.6	1.8	1.7
0.50	0.50	0	1.0	0.51	1.52	102.0	101.3	2.1	1.8

Table S3. Sensing of 0.5 mM EP with addition of 5 mM of some interferents (n = 3) at the Cu/Au electrode.

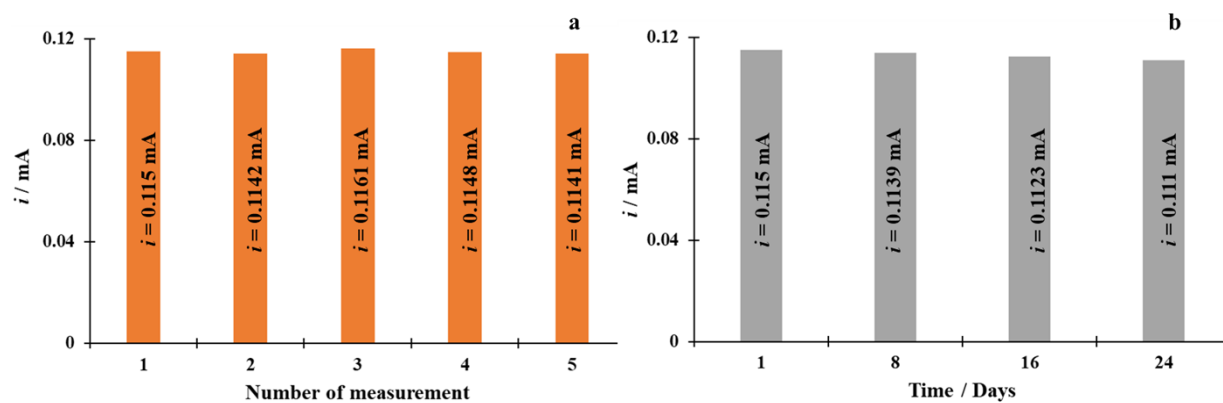| Type of interference	Found EP [mM]	Recovery [%]	RSD [%]
Na^+	0.489	97.8	2.4
K^+	0.512	102.4	3.5
Ca^{2+}	0.491	98.2	2.1
NH_4^+	0.533	106.6	1.8
Mg^{2+}	0.529	105.8	2.7
SO_4^{2-}	0.479	95.8	3.2
$C_2O_4^{2-}$	0.518	103.6	2.1

Fig. S9. Graphs presenting (a) reproducibility and (b) long-term stability of the Cu/Au electrode.