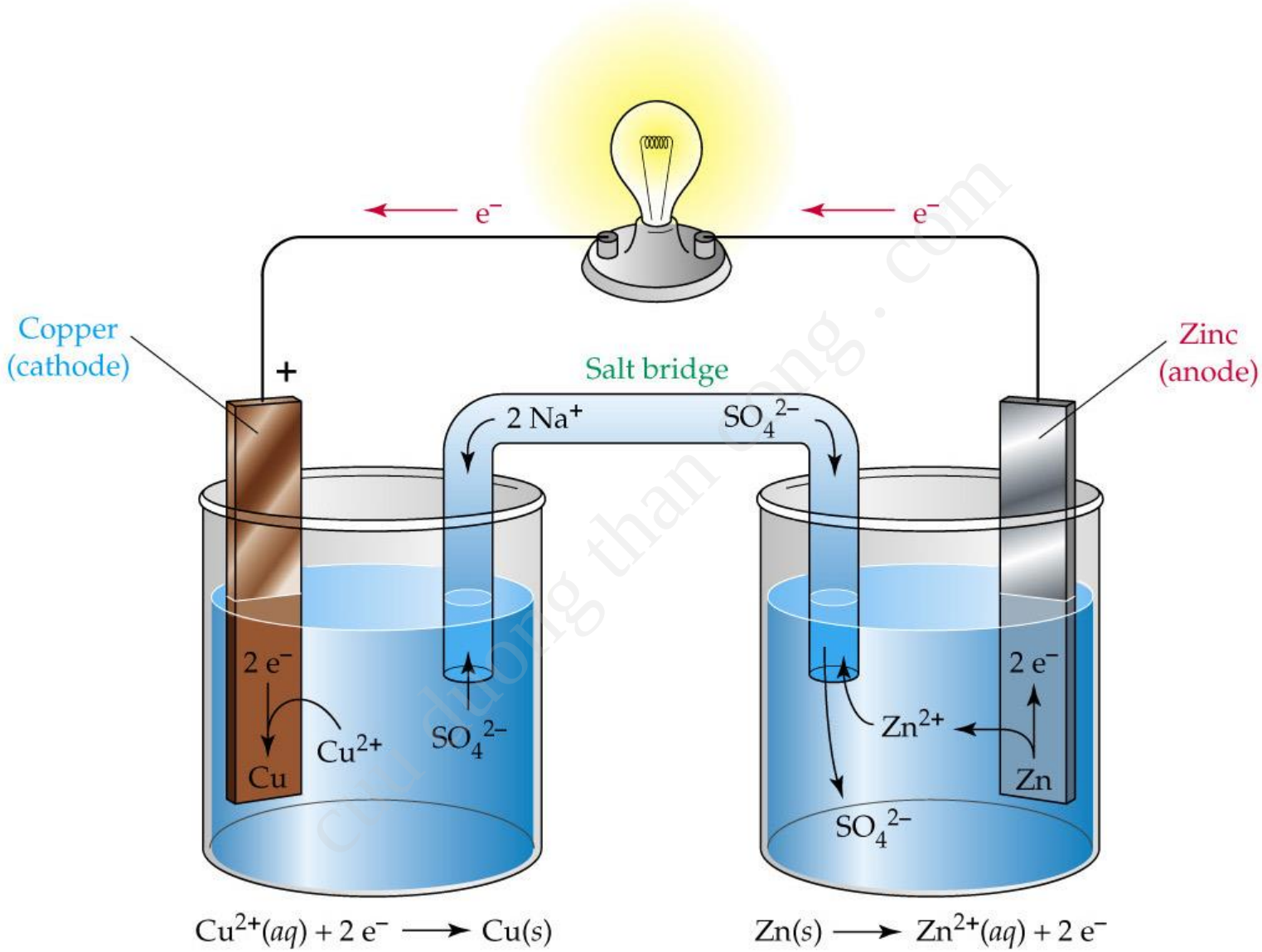
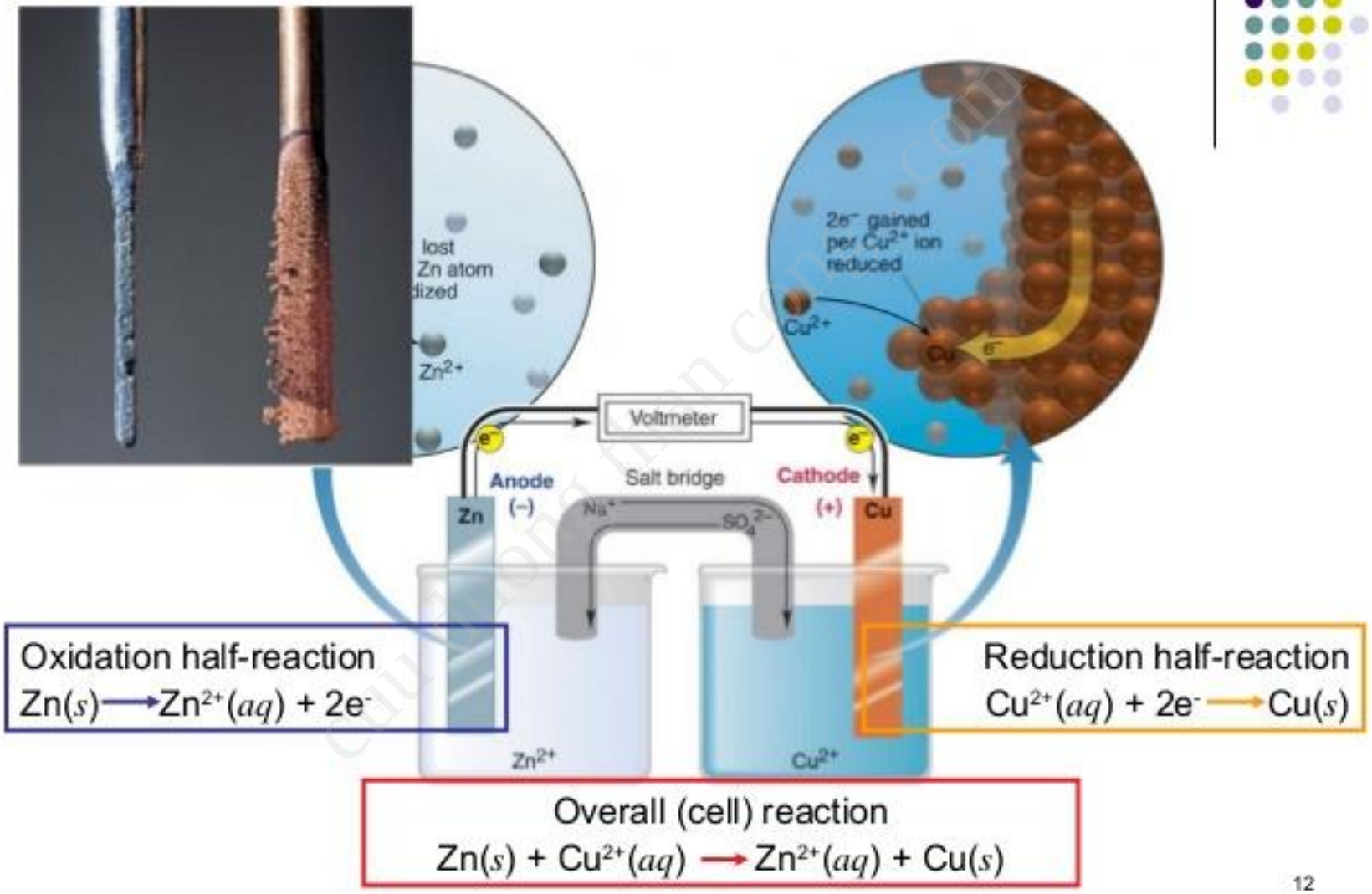
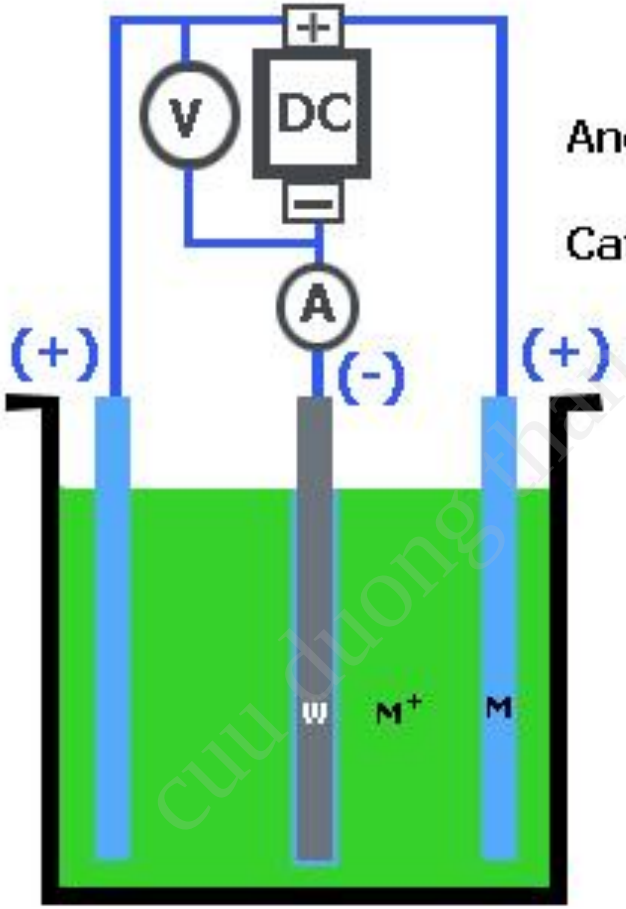


(a)

Figure 21.5 **A voltaic cell based on the zinc-copper reaction.**



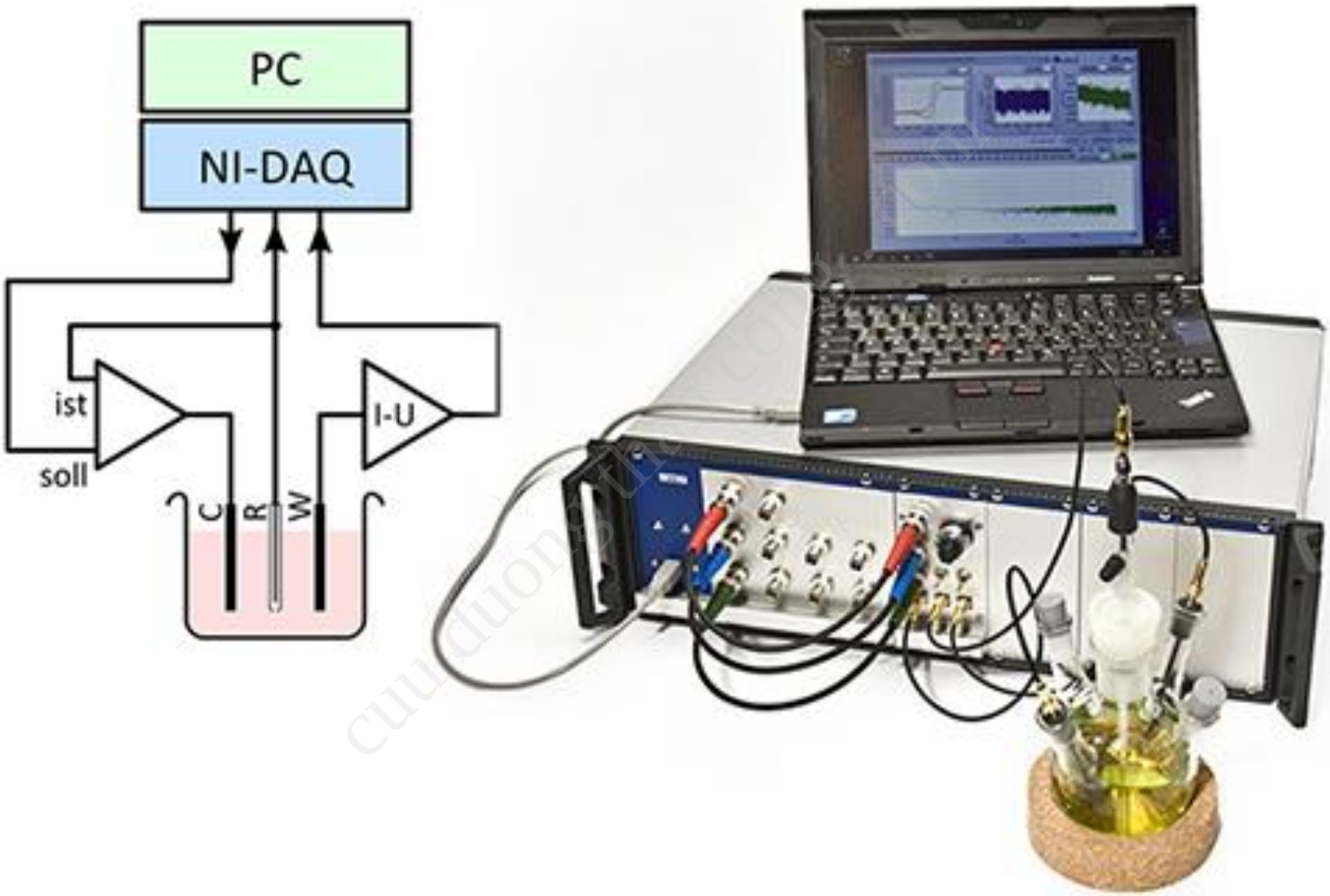
ELECTROPLATING PROCESS

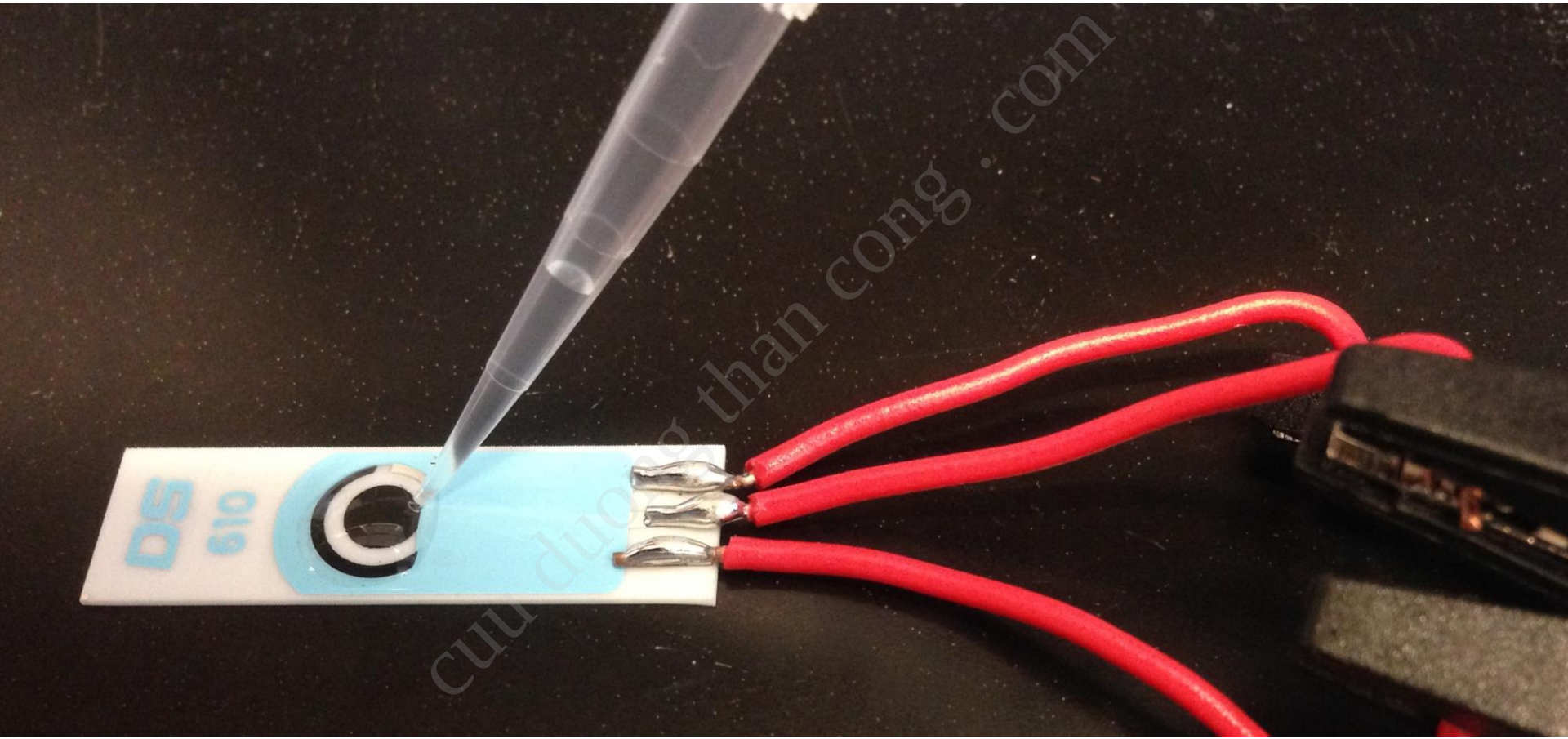


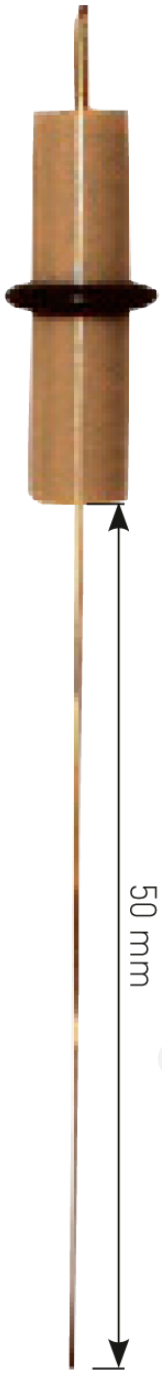
Anode : $M \text{ ------> } M^+ + e$

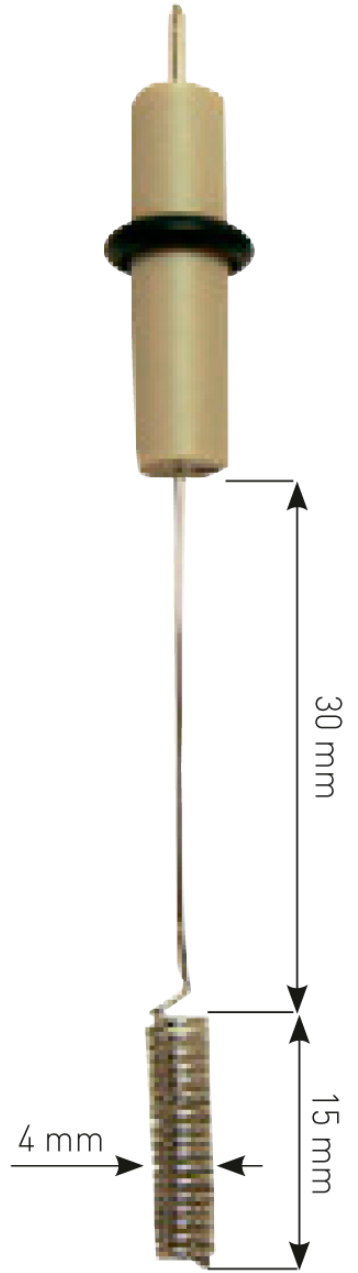
Cathode : $M^+ + e \text{ -----> } M$

M : Metal anode
M^+ : Metal ion
W : Workpieces (Cathode)
DC : Rectifier
V : Voltmeter
A : Amperemeter









Unit: mm

Purpose

Standard type: The most standard electrode. It could be used in SVC-2, SVC-3 and VC-4 voltammetry cells.*2

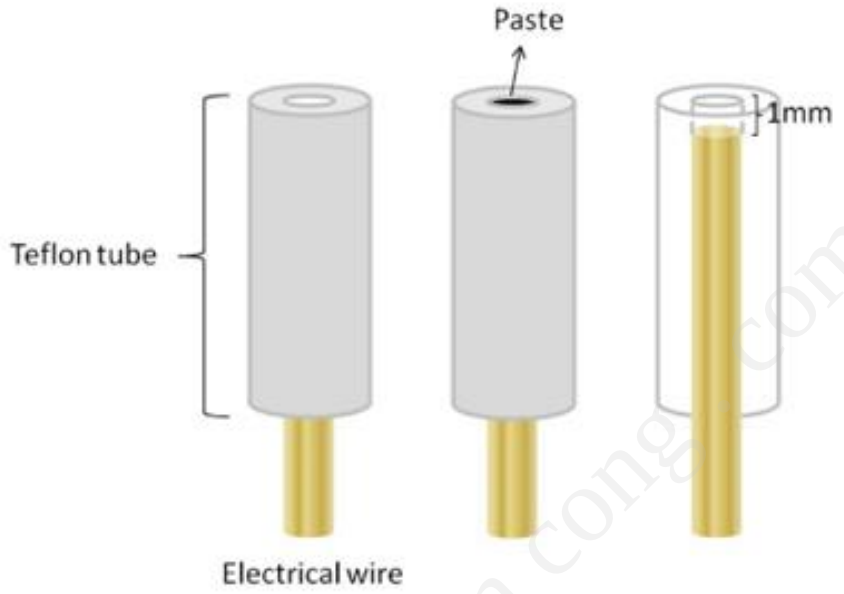
Long type: PEEK body of 110 mm.

Small type: OD: 3 mm, for measurement of the small volume sample.

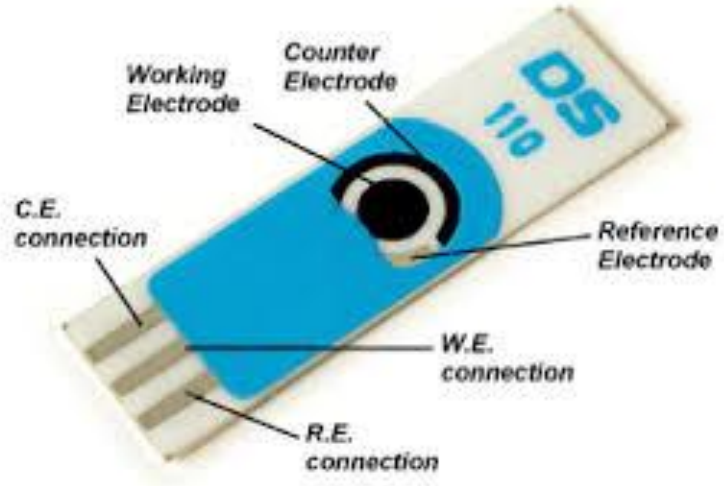
Micro electrode: High speed scan and determination of the diffusion coefficient

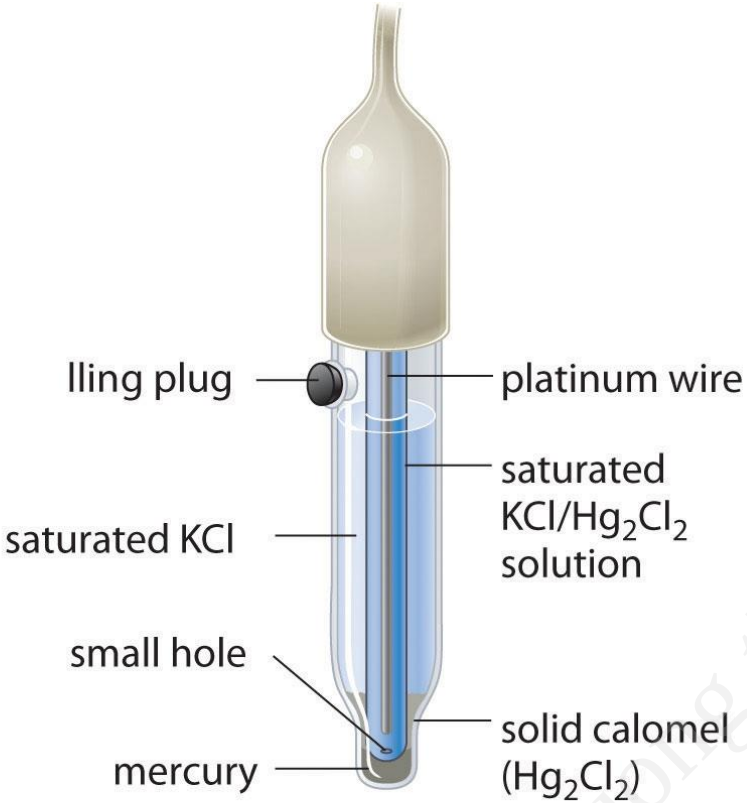
Gauze type: Apply for bulk electrolysis and as a counter electrode

*1. O-ring, one is attached in the electrode. The O-ring is available separately, 002247 O-ring for CV electrode (10 pcs).
*2. For OD: 10 mm working electrode, the SVC-2 in a VC-5 mode is recommended.

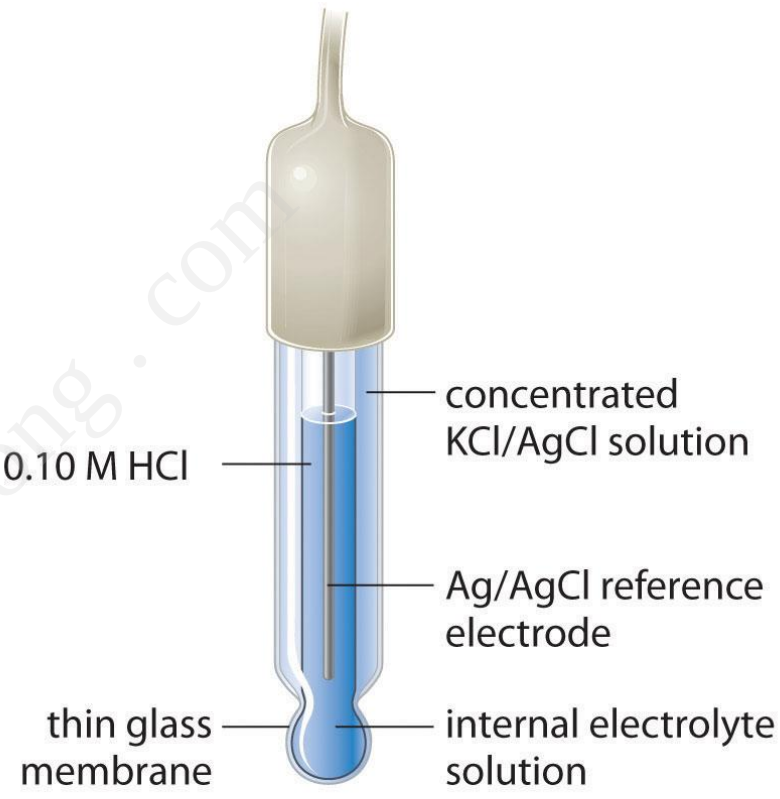


Scheme 2. Nanocarbon paste electrode.

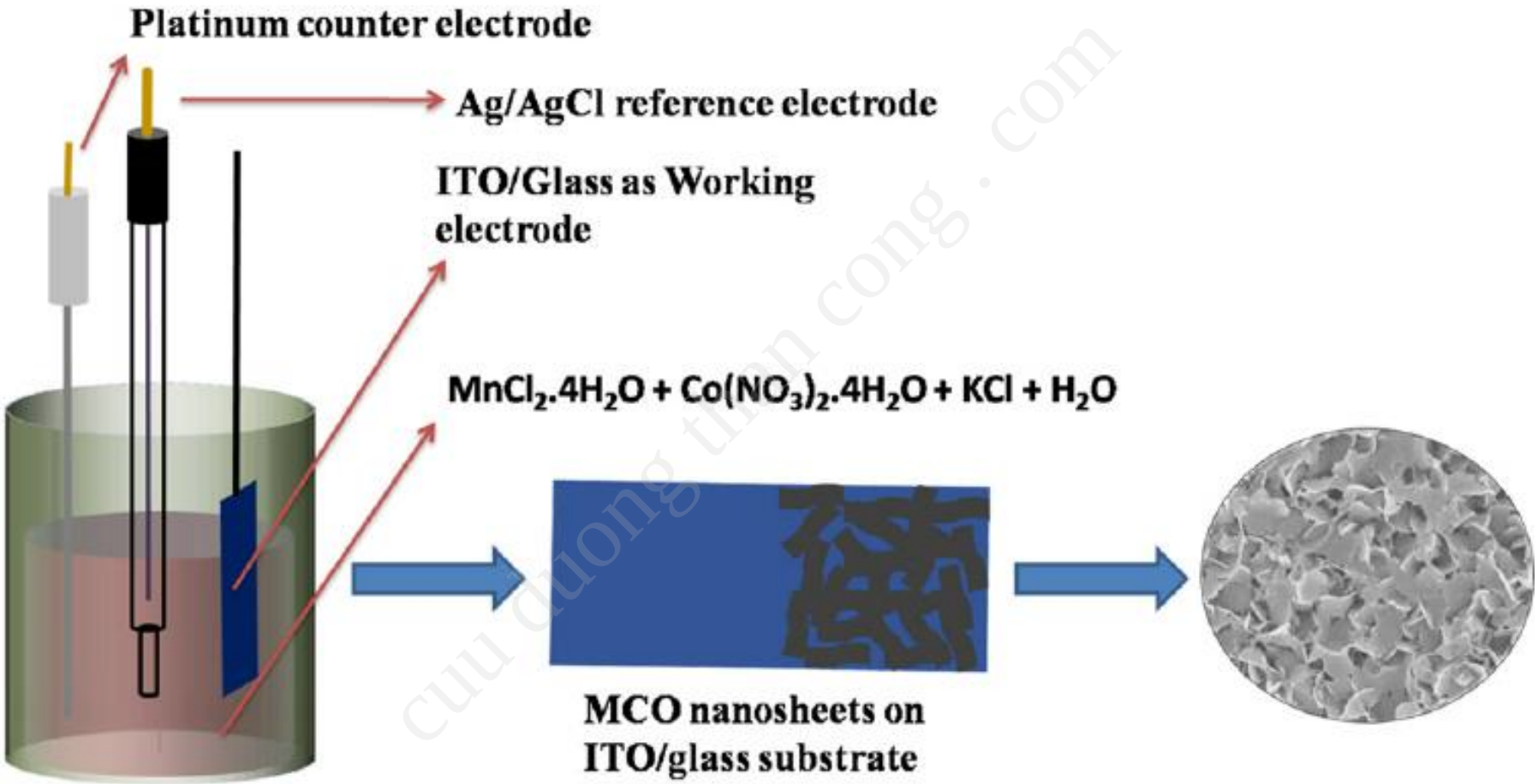




(a) Saturated calomel electrode (SCE)



(b) Glass electrode



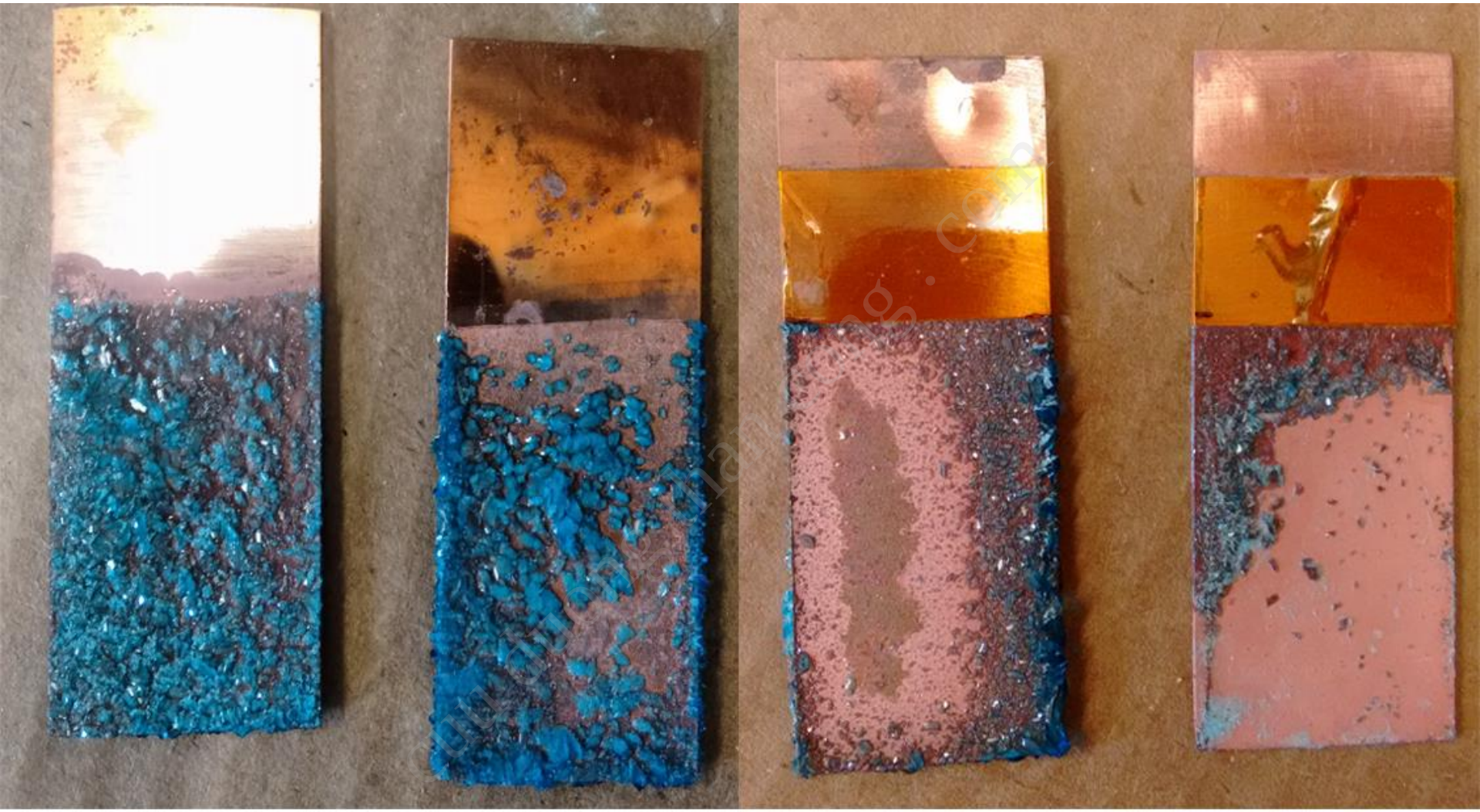
Native gold

Silver nugget

Fe ???

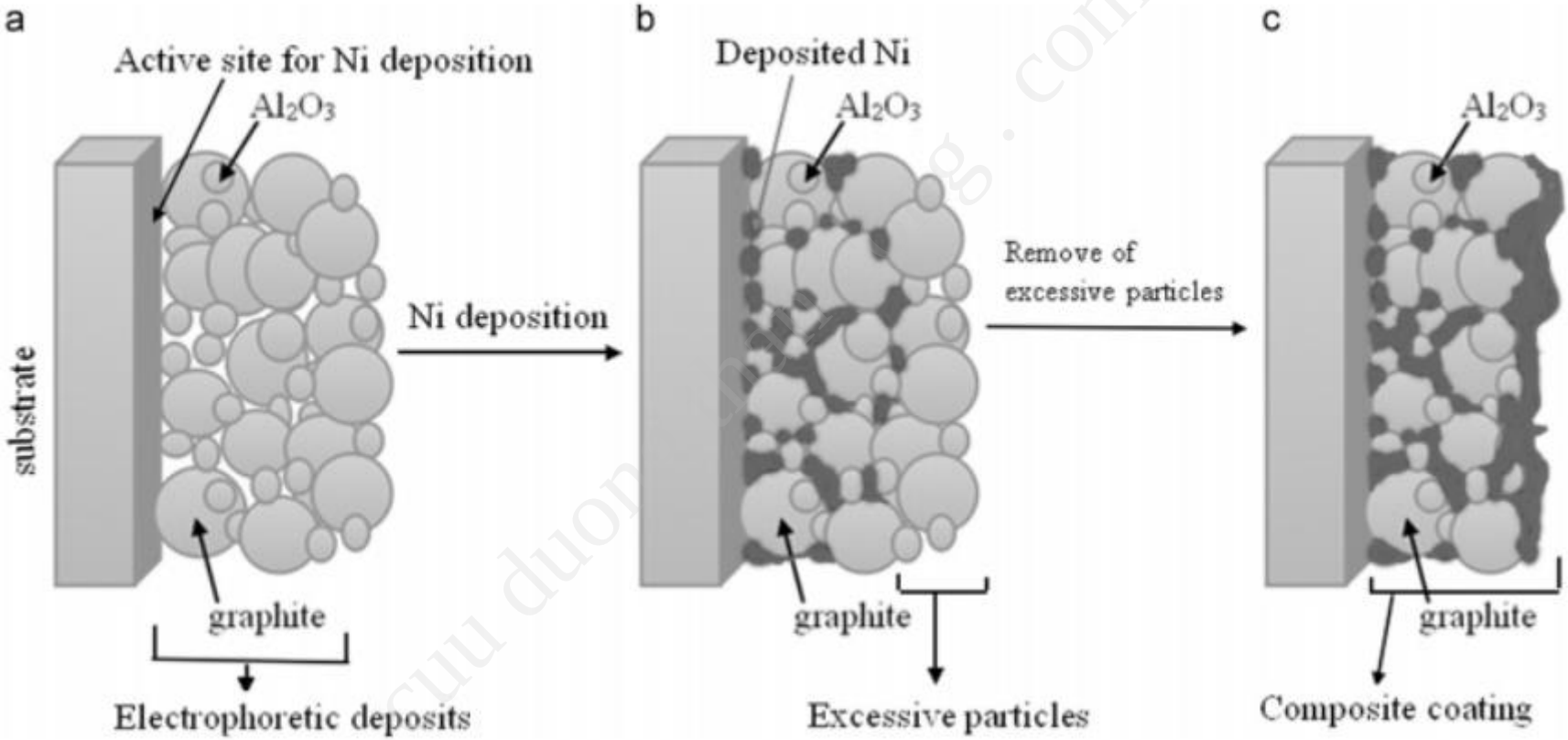
Native copper

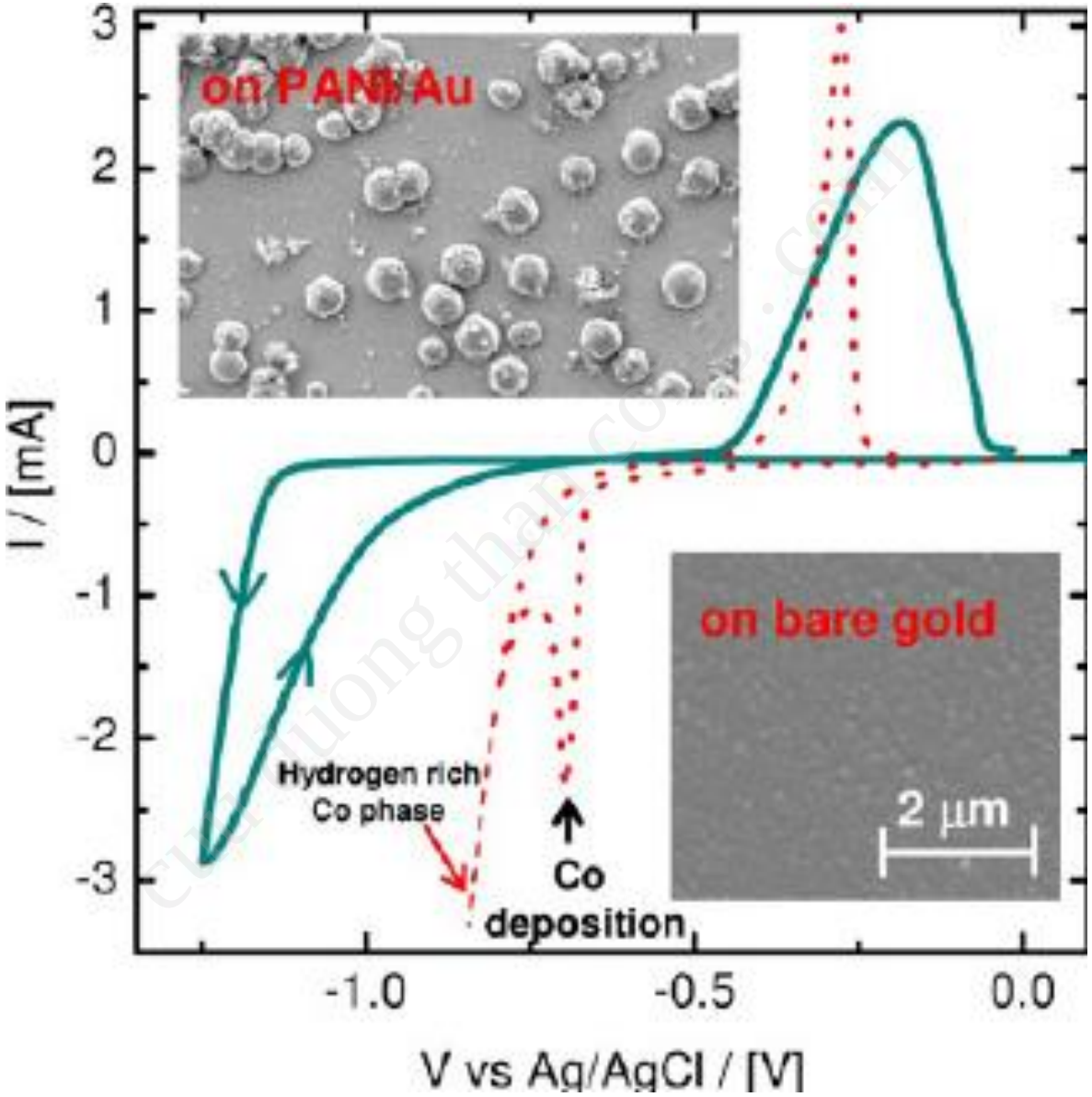
Platinum nugget



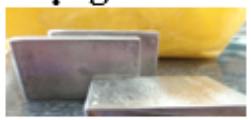
200 rpm

1000 rpm





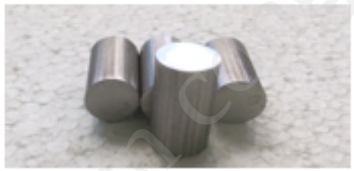
Inox 316L dạng khối



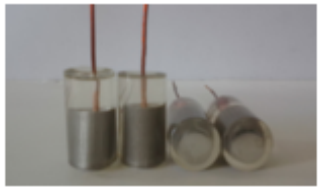
Xử lý cơ

Phương pháp cắt dây

Điện cực inox trụ d = 0,9 cm, h = 4 cm



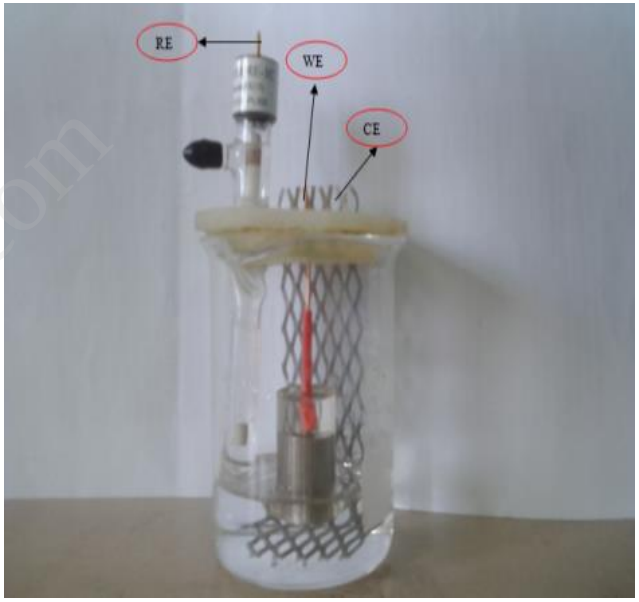
Đúc điện cực bằng keo epoxy

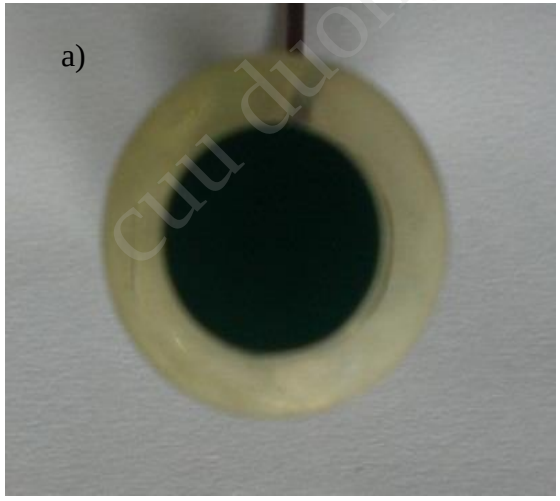


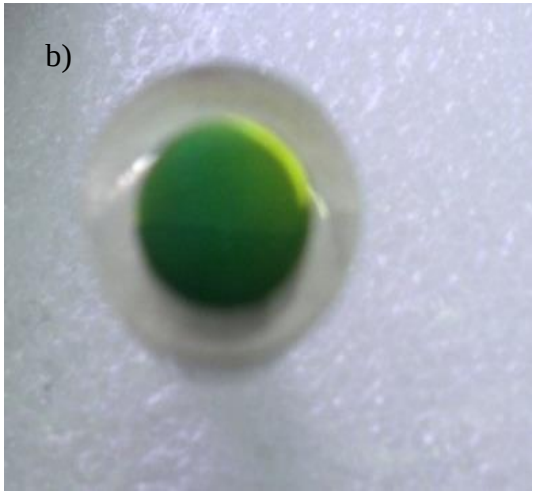
Xử lý bề mặt điện cực bằng giấy nhám lần lượt: P600, P800, P1000, P1200, P1500, P2000

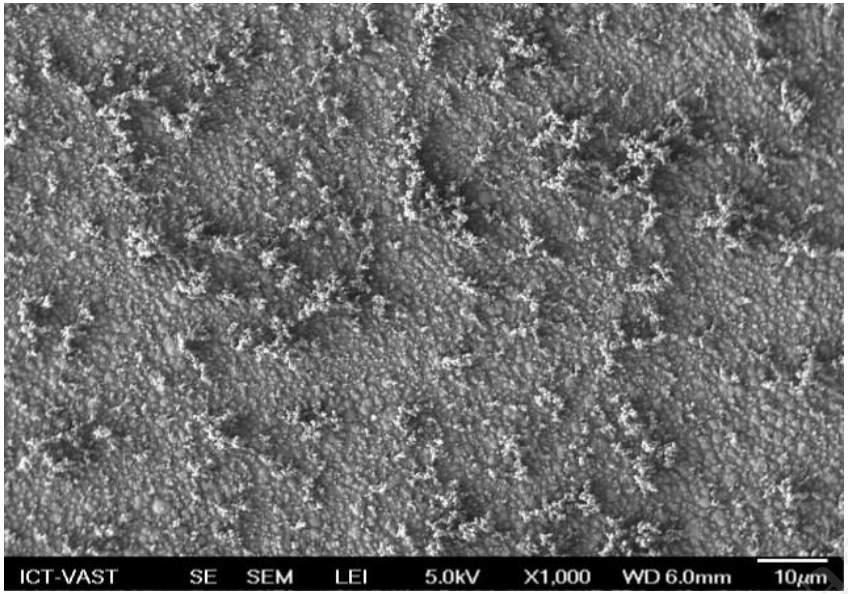
Đánh siêu âm rửa sạch điện cực lần lượt với xà phòng, nước máy, nước cất, aceton

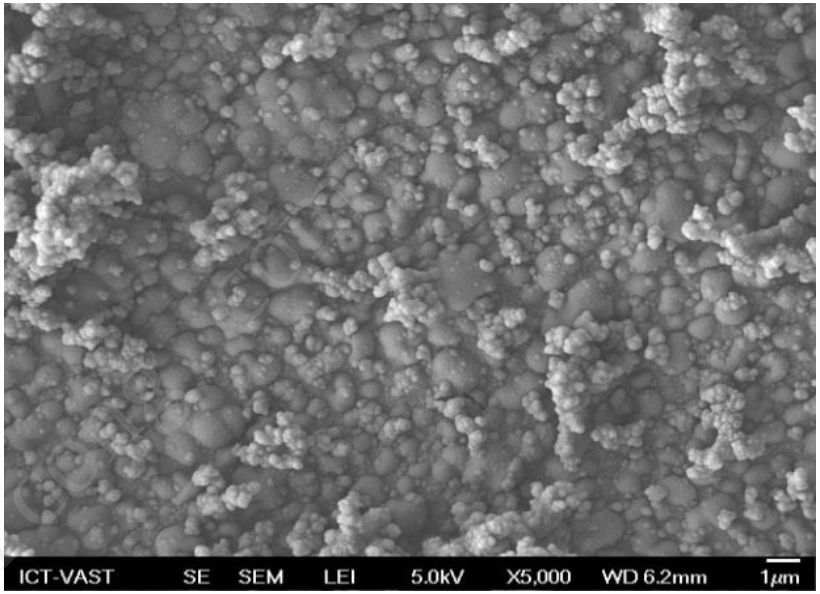
Sấy khô, tiến hành thí nghiệm

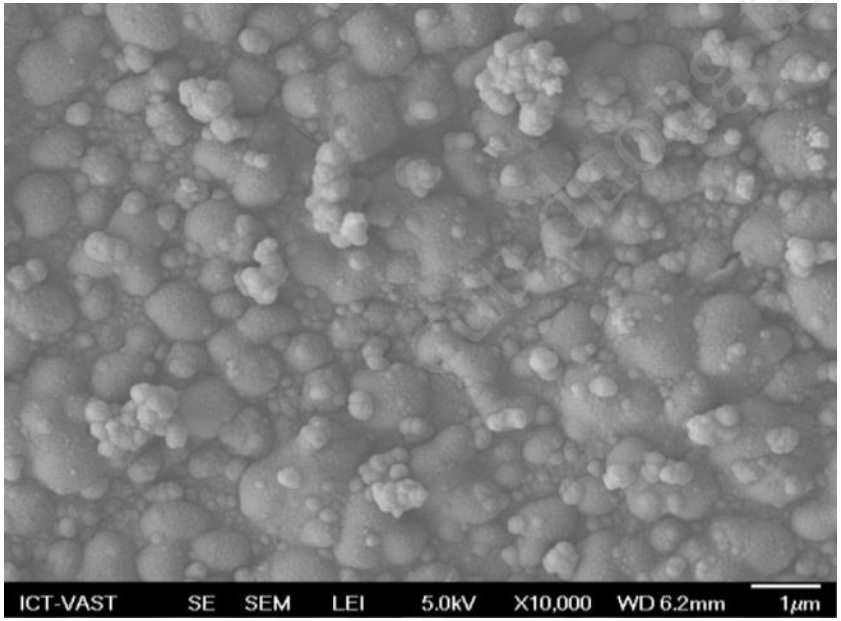


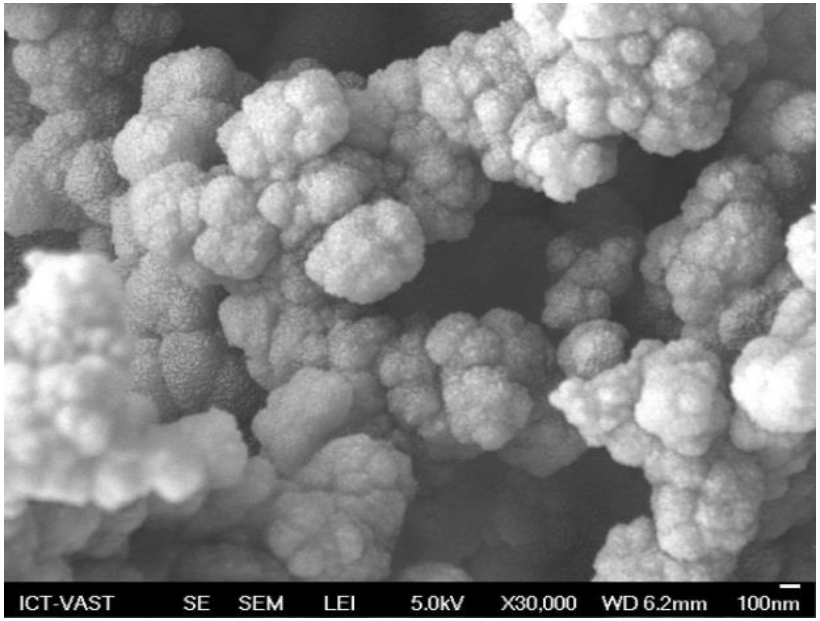






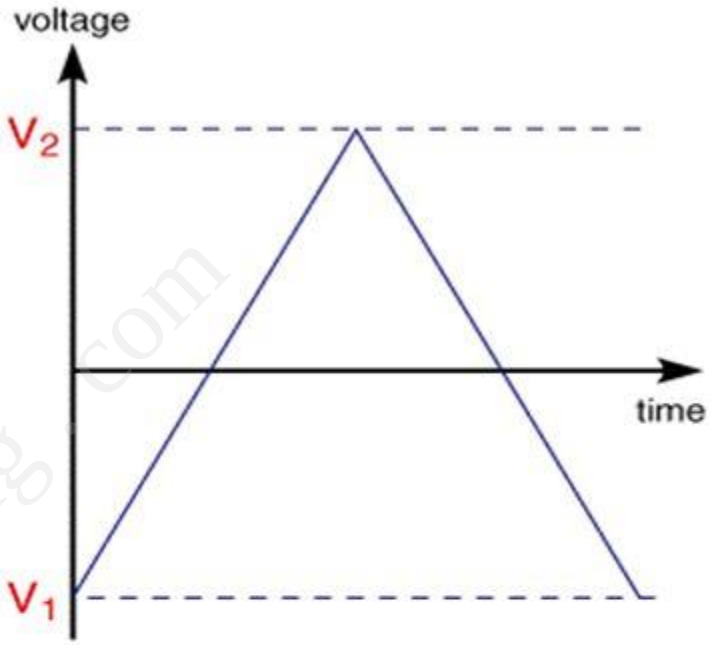


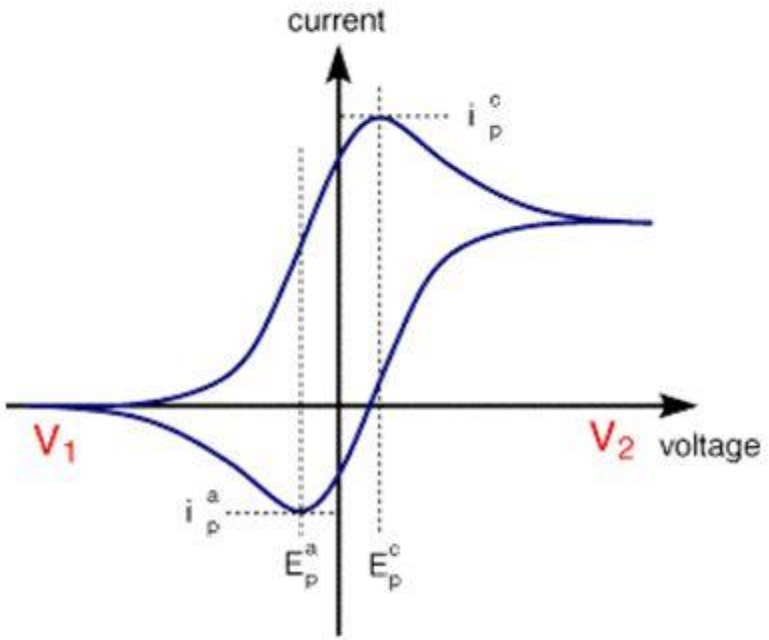




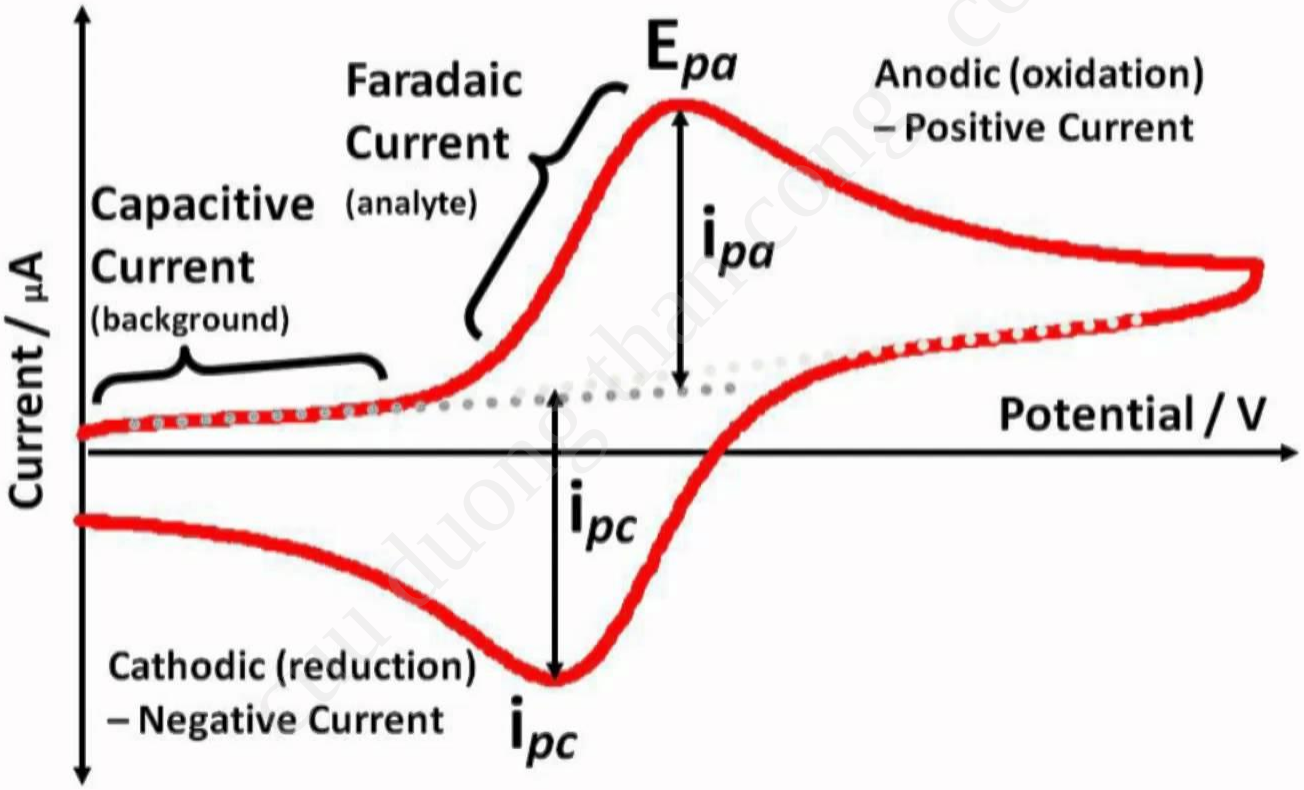
Cyclic Voltammetry

- i_{pc} and i_{pa} refer to the peak current of the cathodic and anodic sweeps.
- E_{pa} and E_{pc} refer to the potential (voltage) of the anodic and cathodic current peaks.

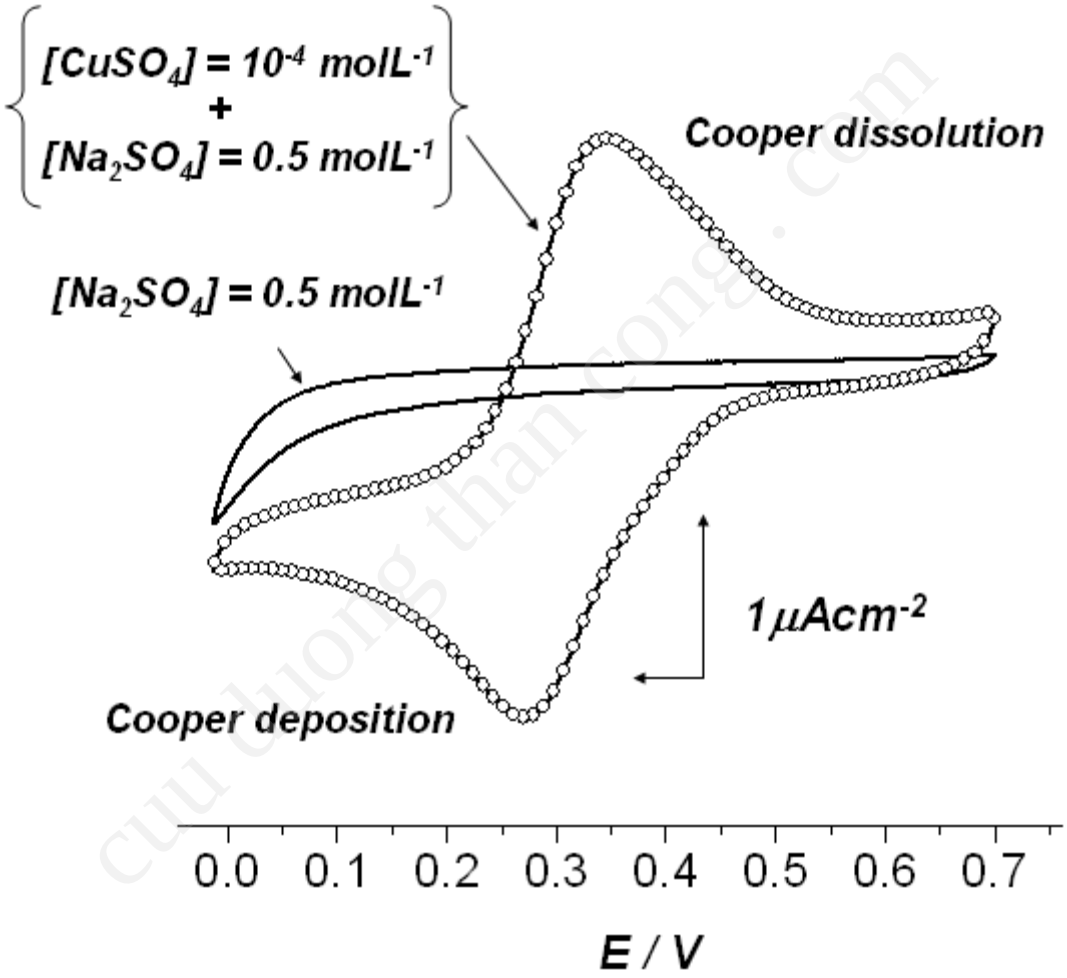


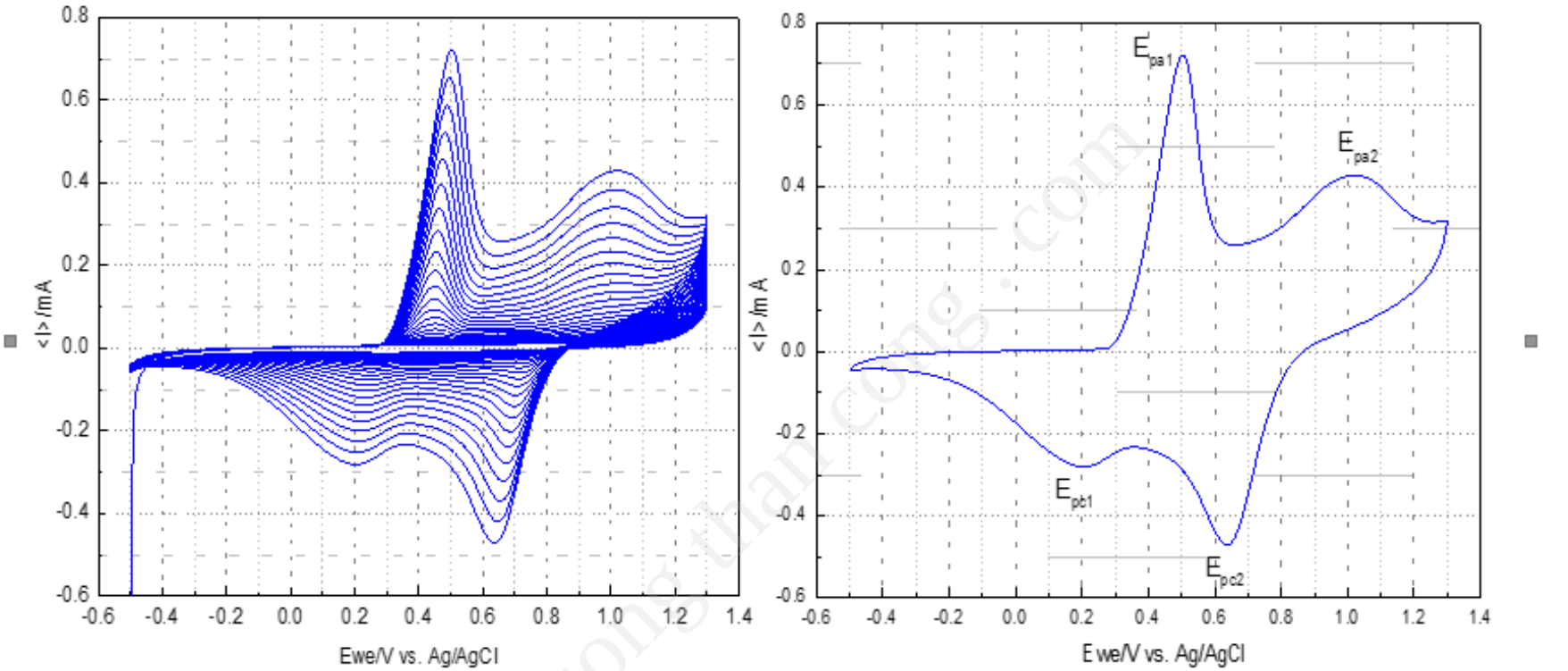


Cyclic Voltammogram

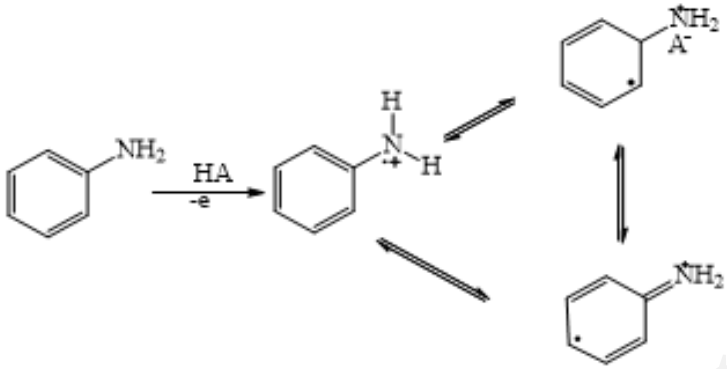


b.a.patel@brighton.ac.uk

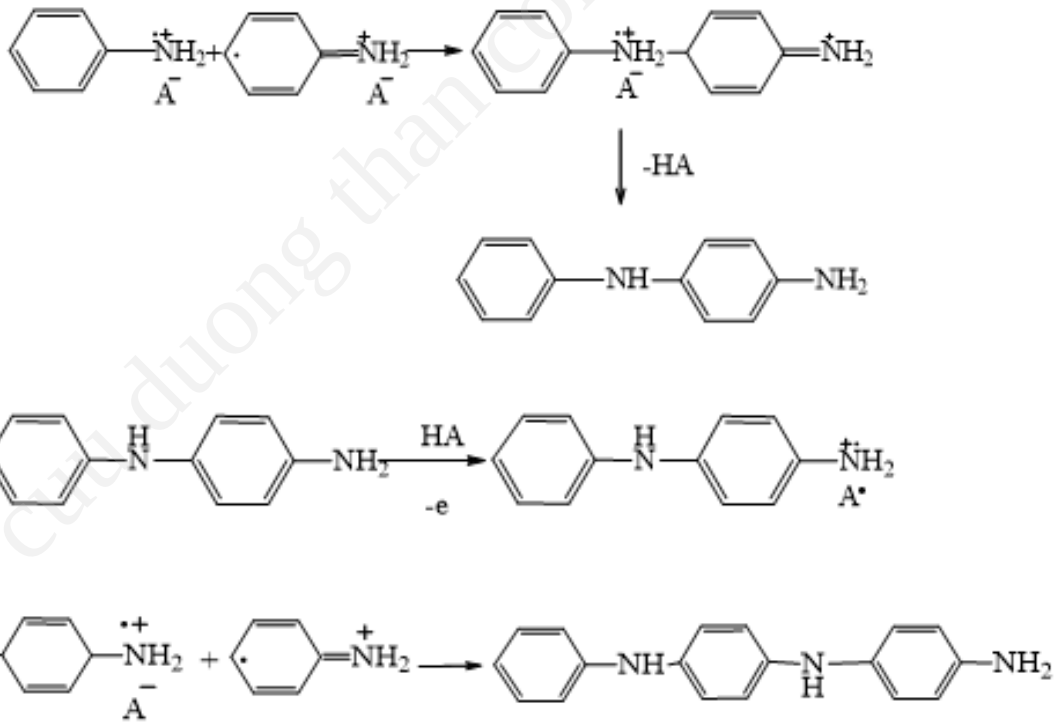




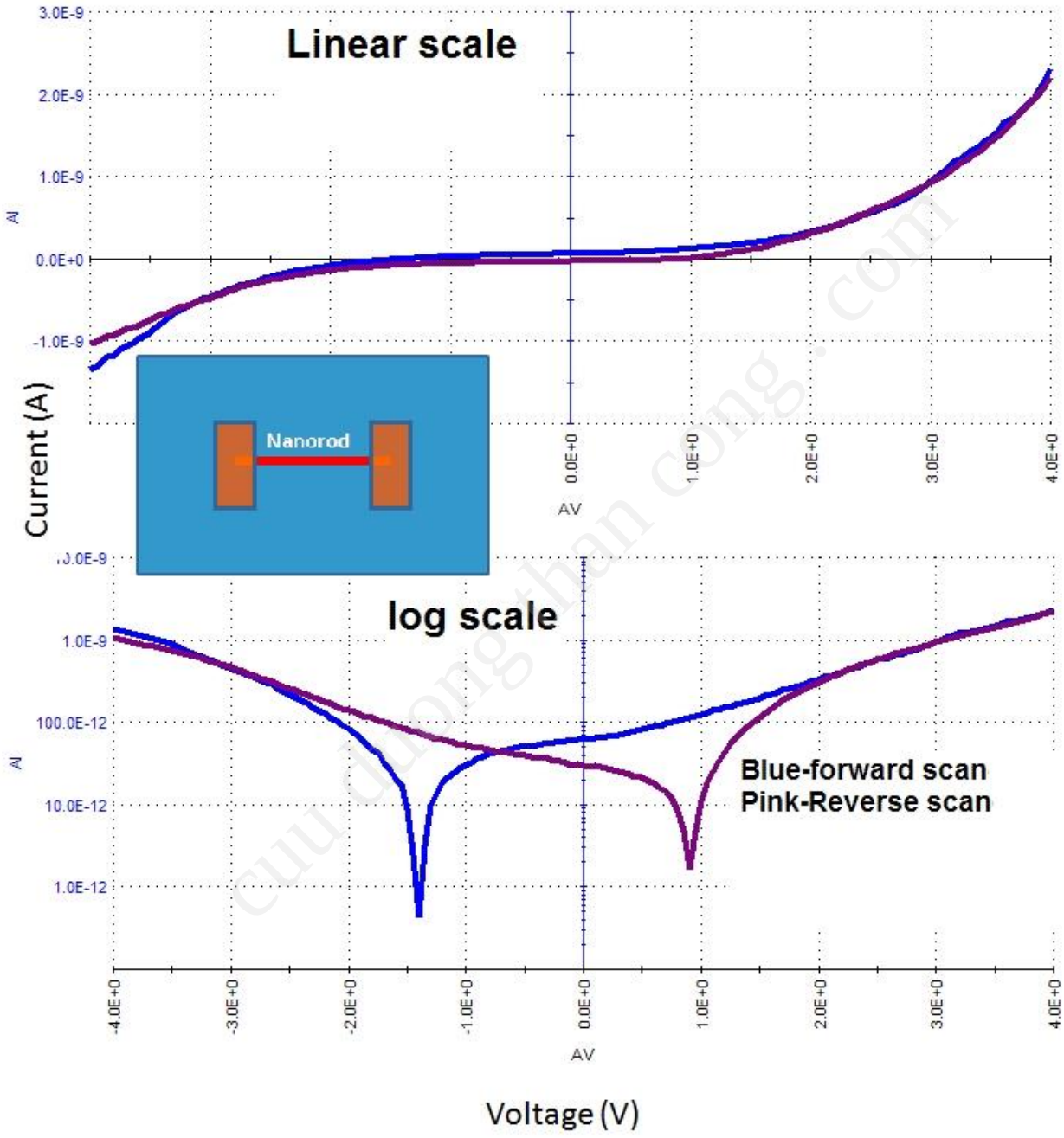
Hình 3.2. *Đường CV tổng hợp PANI trong etanol (99,9 %), anilin 0,1 M, H_2SO_4 0,5 M, 30 mV/s trên điện cực inox 316L a) cả quá trình và b) chu kì thứ 25.*

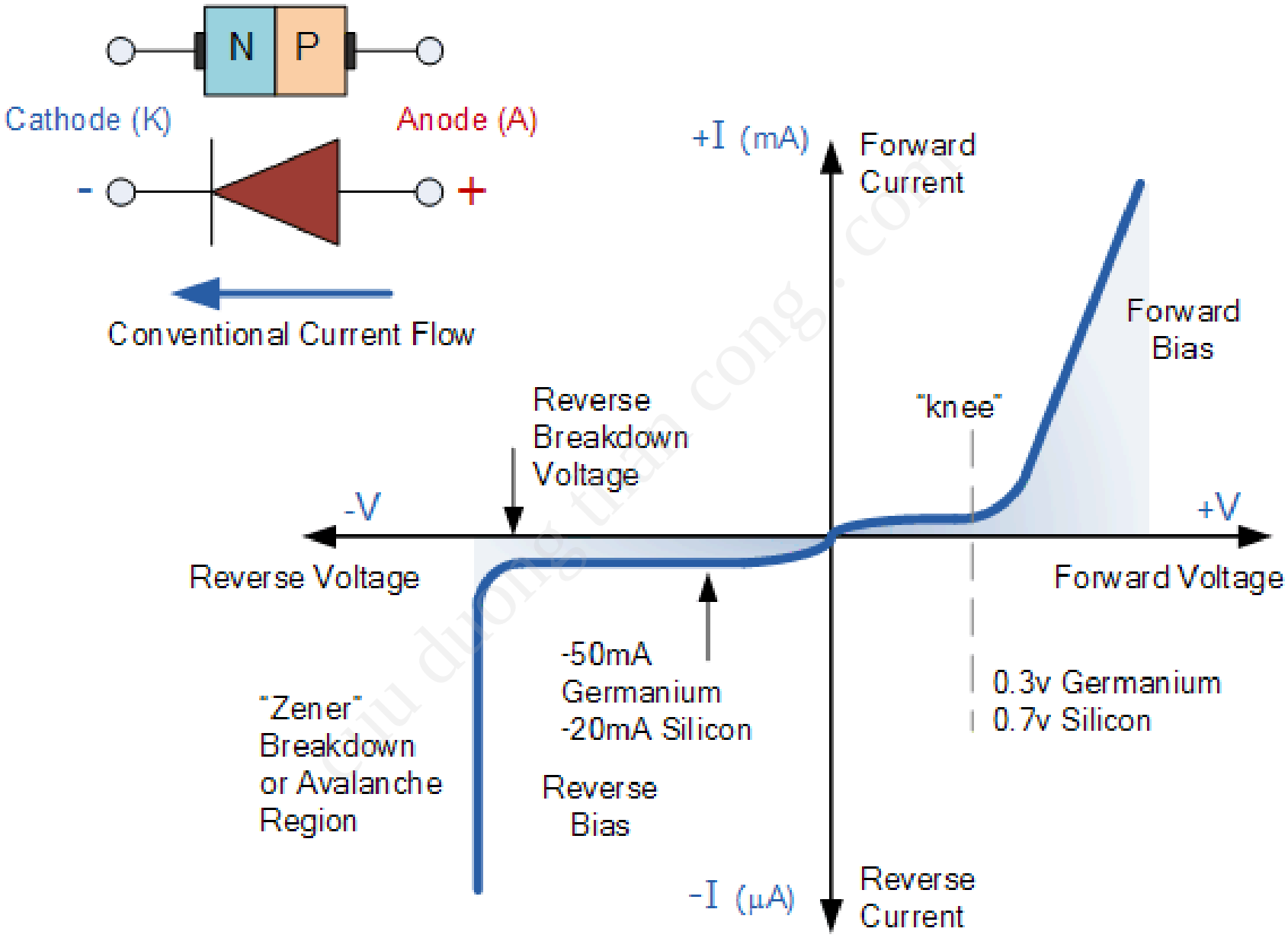


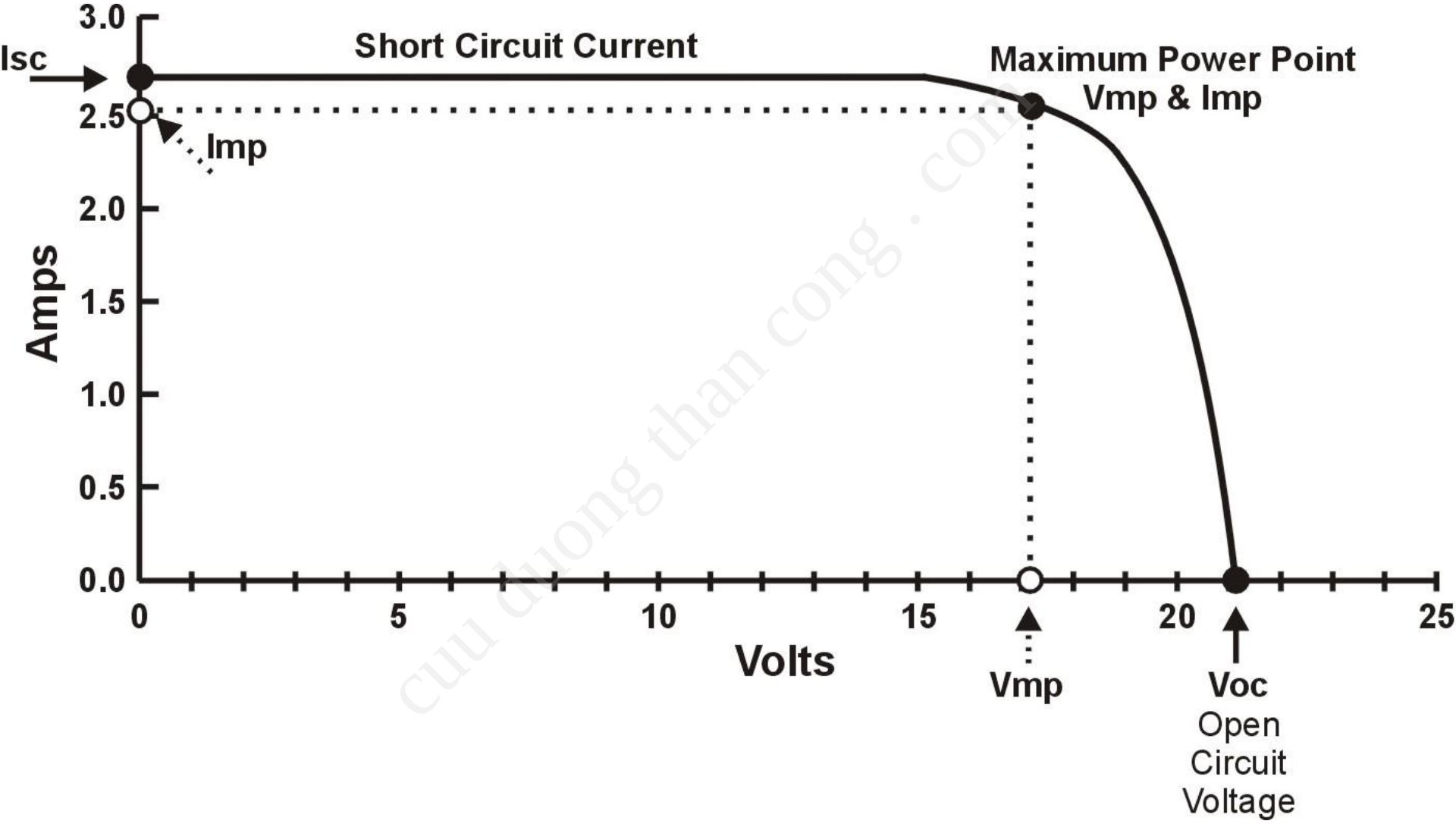
- Phát triển mạch PANI:

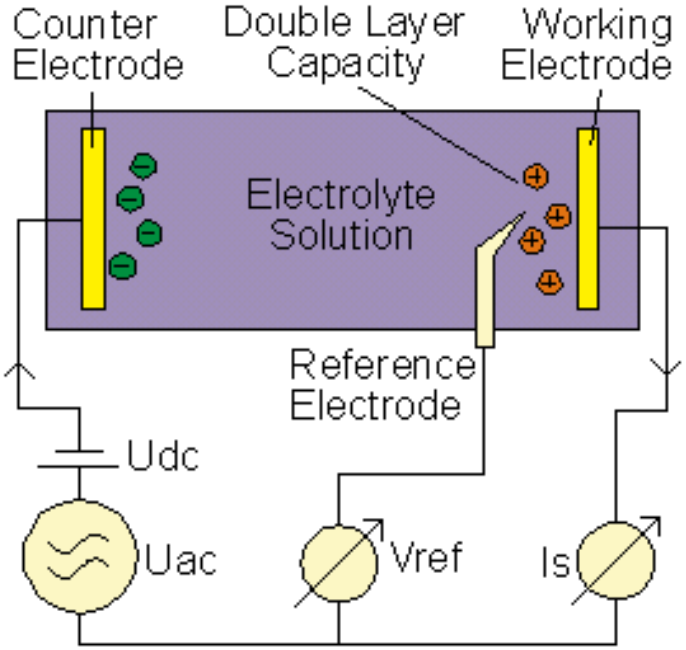


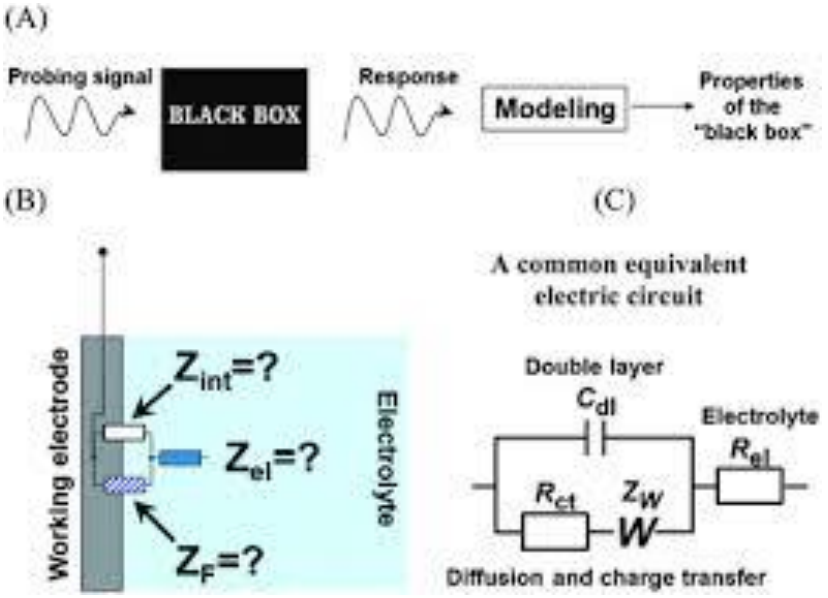
Hình 1.13. *Cơ chế tổng hợp PANI.*











Electrochemistry as a Circuit

- Double Layer Capacitance
- Electron Transfer Resistance
- Uncompensated (electrolyte) Resistance