Supplemental file

Activated *Hordeum Vugare* L. dust as carbon paste electrode modifier for the sensitive electrochemical detection of Cd^{2+}, Pb^{2+} and Hg^{2+} ions

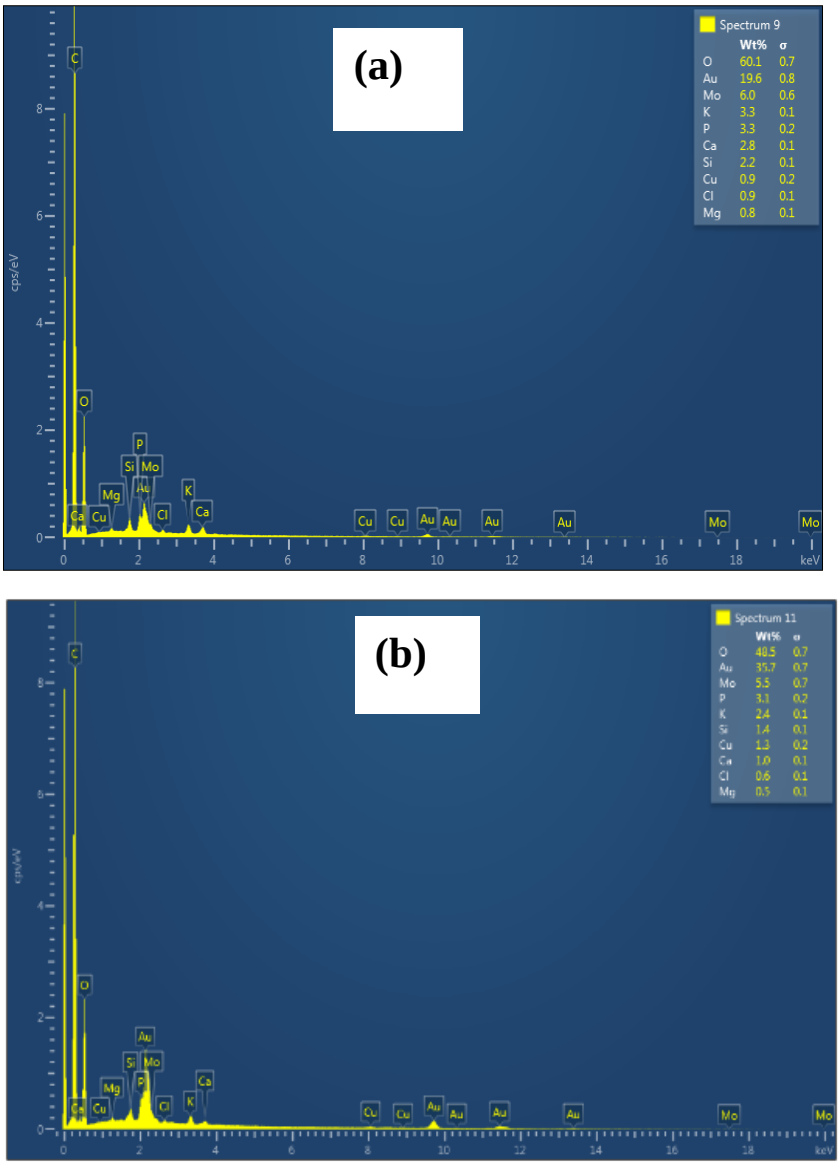

Figure SI 1: EDX curves of (a) HVW and (b) HVW-Na_2CO_3 materials.

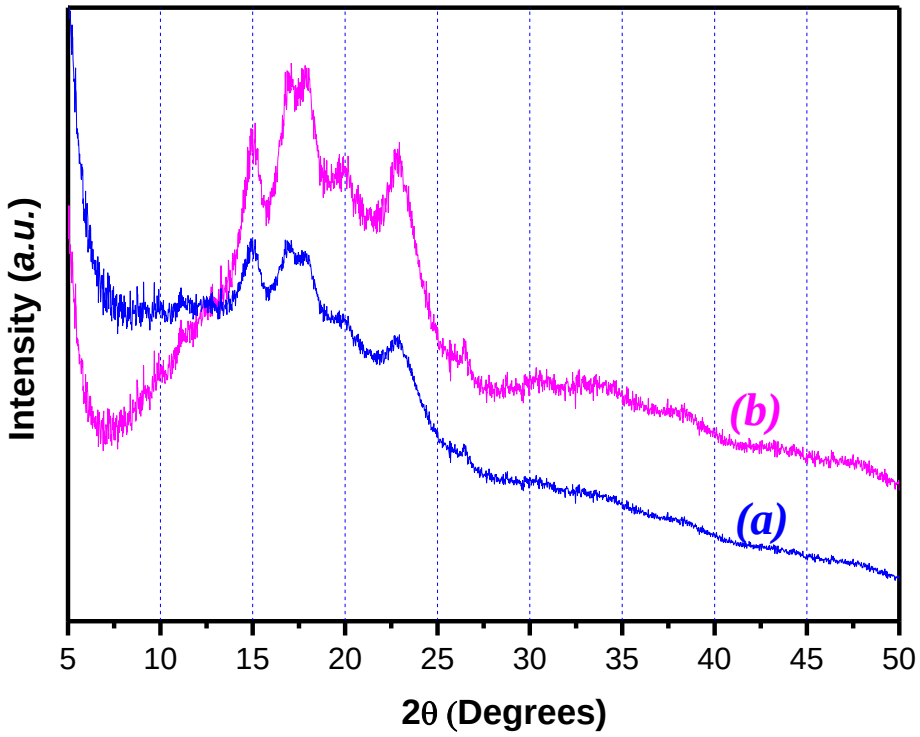

Figure SI 2: XRD patterns of (a) HVW and (b) HVW-Na_2CO_3 materials.

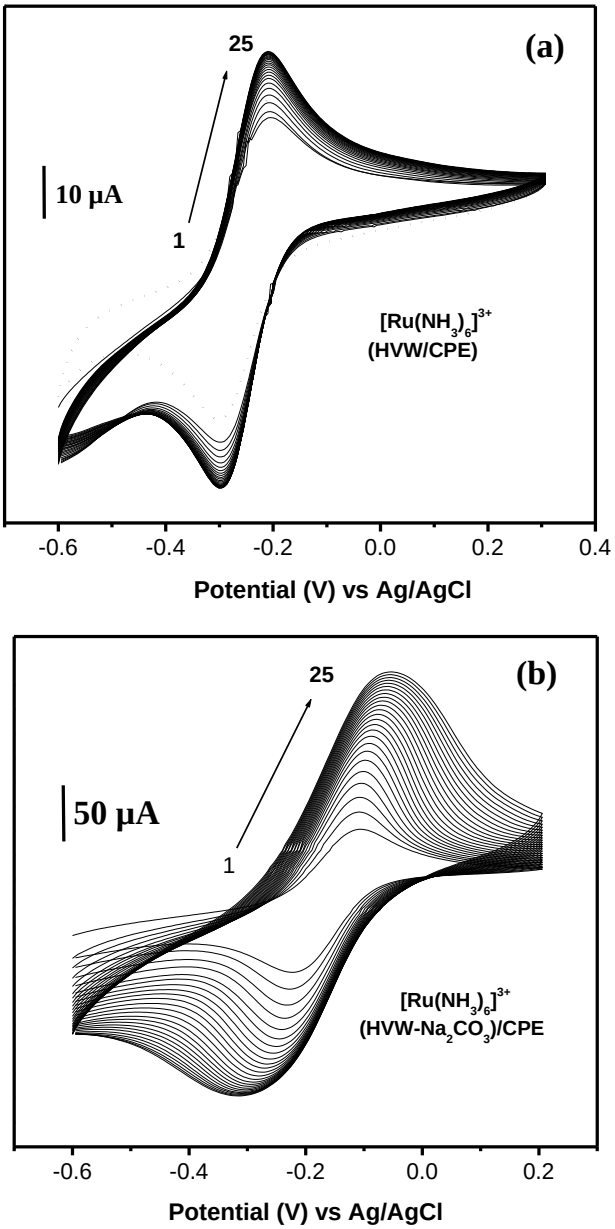

Figure SI 3: Cyclic voltammograms recorded at 50 mV s^{-1} in 0.1 M KCl (pH 7) +1 mM $[Ru(NH_3)_6]^{3+}$ using (a): HVW/CPE and (b): HVW-Na_2CO_3/CPE. The dotted line in (a) represents the signal of $[Ru(NH_3)_6]^{3+}$ on the UMCPE.

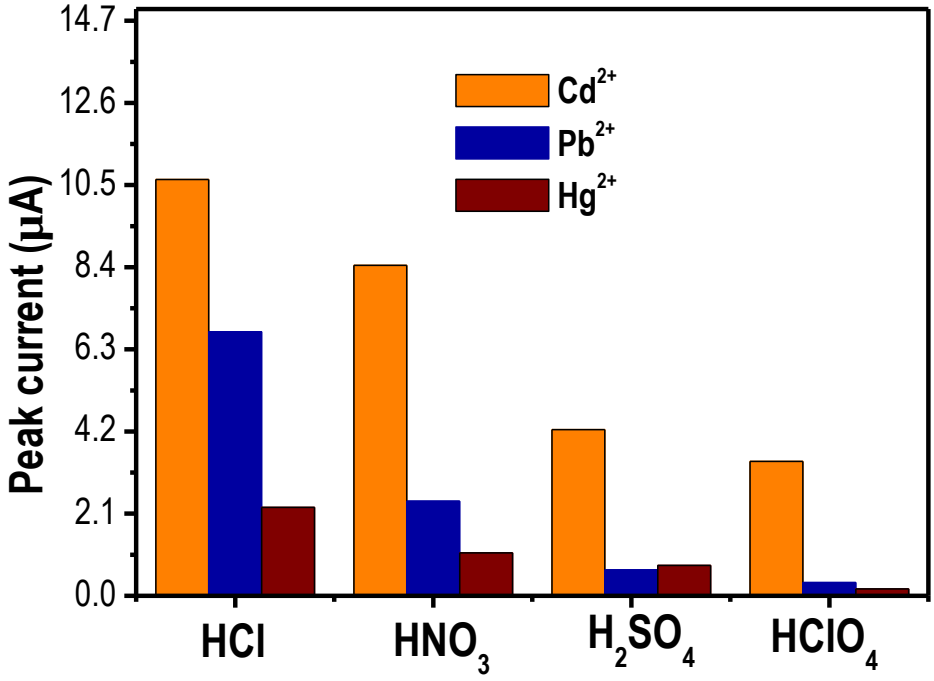

Figure SI 4: Effect of the nature of stripping medium on the DPV curves of 5×10^{-5} M Cd^{2+}, 10^{-5} M Pb^{2+} and 10^{-5} M Hg^{2+}. Accumulation was performed on HVW-Na_2CO_3/CPE for 3 min in aqueous solution (pH 6.5) followed by detection in each acidic solution (concentration: 0.1 M).

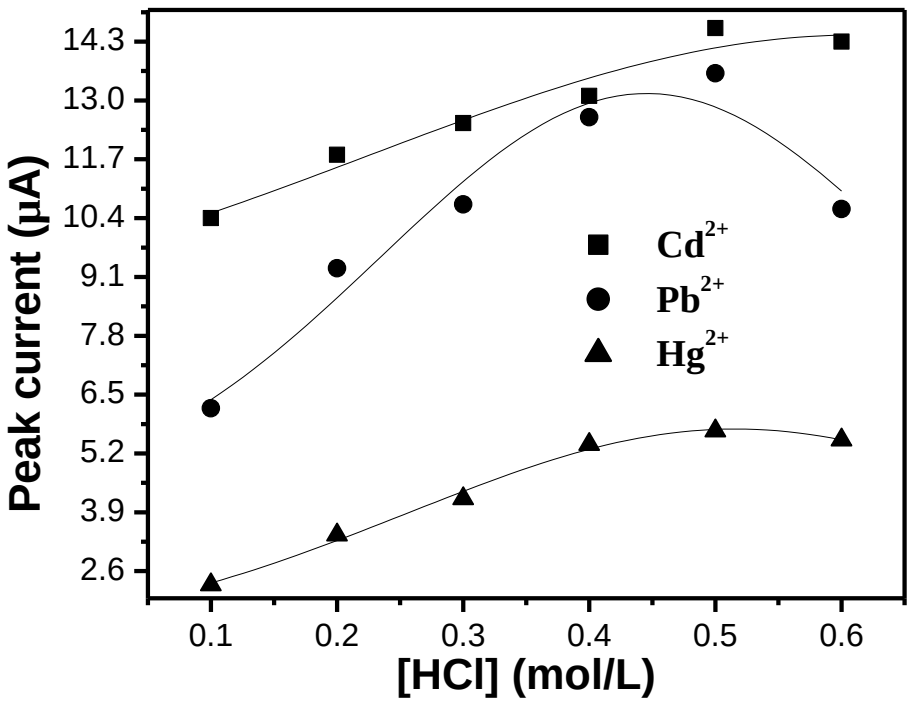

Figure SI 5: Effect of the acidity of the stripping medium (HCl) on the electrochemical response on HVW-Na_2CO_3/CPE of 5 $\times 10^{-5}$ M Cd^{2+}, 10^{-5} M Pb^{2+} and 10^{-6} M Hg^{2+}after 3 min accumulation in aqueous solution (pH 6.5). Detection in HCl upon 60 s electrolysis at -1.0 V

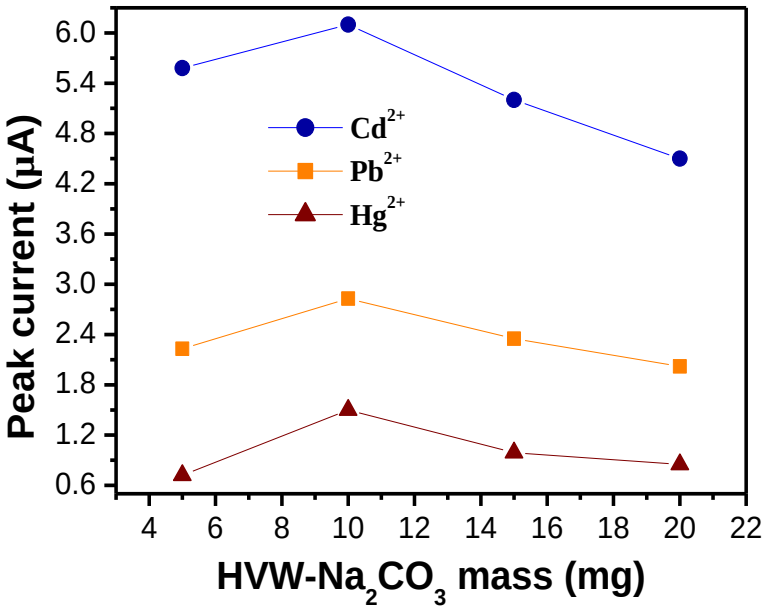

Figure SI 6: Effect of variation HVW-Na_2CO_3 mass on current response of HVW-Na_2CO_3/CPE upon 3 min preconcentration in aqueous solution (pH 6.5) with 5×10^{-5} M Cd^{2+}, 10^{-5} M Pb^{2+} and 10^{-5} M Hg^{2+}. Detection in 0.5 M HCl after 60 s electrolysis at -1.0 V.

Table SI 1. Carbon paste electrodes' composition (weight percentages) used in this work

Electrode constituent	Mass (mg)			
Graphite (A)	65	60	55	50
Silicon oil (B)	30	30	30	30
HVW-Na_2CO_3 (C)	5	10	15	20
*CPE composition (%A/%B/%C)	65%/30%/5%	60%/30%/10%	55%/30%/15%	50%/30%/20%

*CPE: Carbon Paste electrode