

Scheme 1. Synthesis routes of the salophen ligands and Co(salophen) complexes.

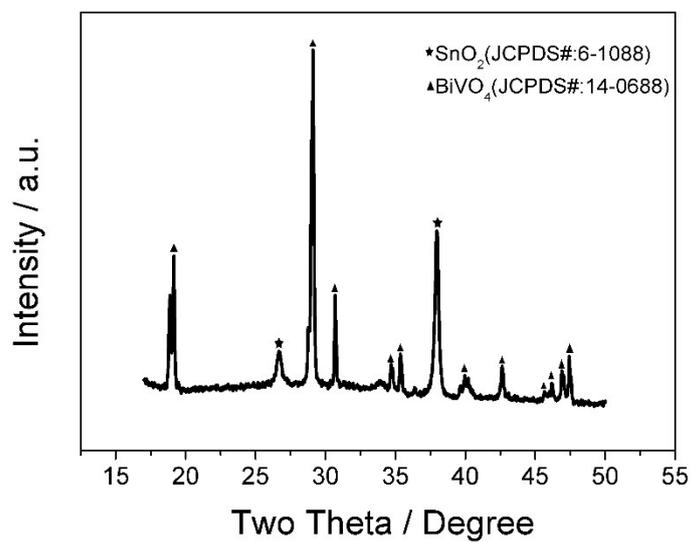


Figure S1. XRD pattern of BiVO₄ photoelectrode.

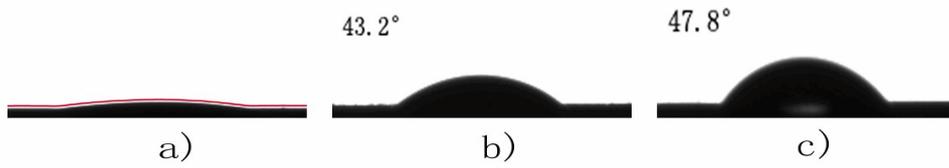


Figure S2. Contact angle measurements of (a) BiVO₄, (b) Co1/BiVO₄ and (c) Co2/BiVO₄.

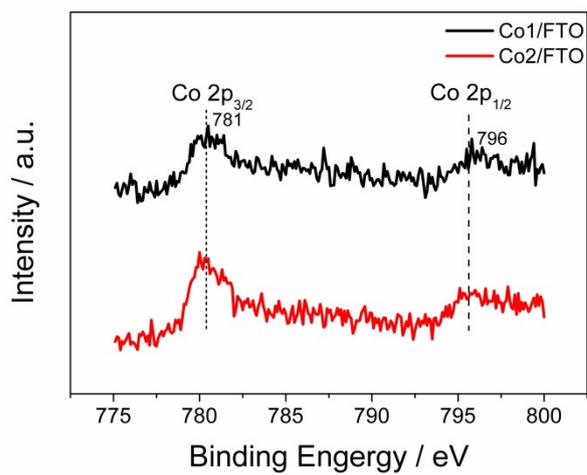


Figure S3. XPS spectra of the Co 2p region of Co1/BiVO₄ and Co2/BiVO₄.

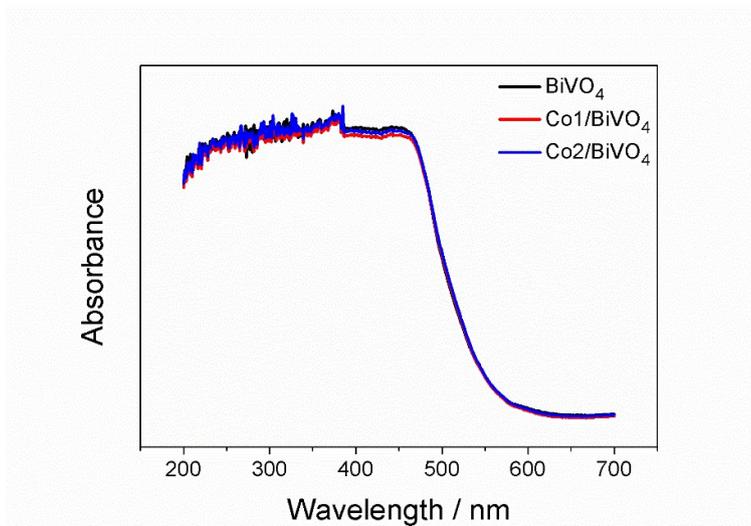


Figure S4. UV-Vis spectra of BiVO_4 , Co1/BiVO_4 and Co2/BiVO_4 .

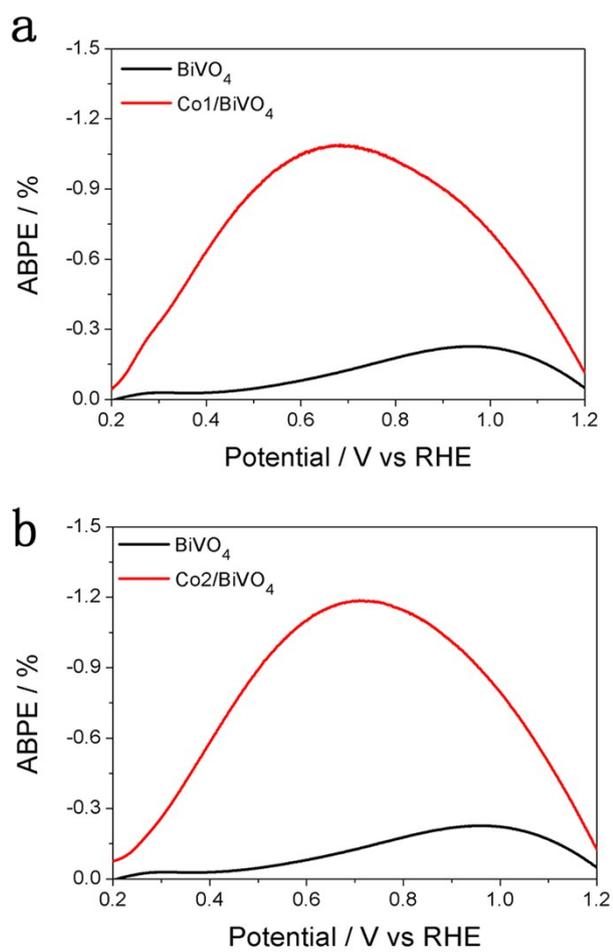


Figure S5. Applied bias photon-to-current efficiencies (ABPE) of (a) Co1/BiVO_4 and (b) Co2/BiVO_4 in comparison with the bare BiVO_4 .

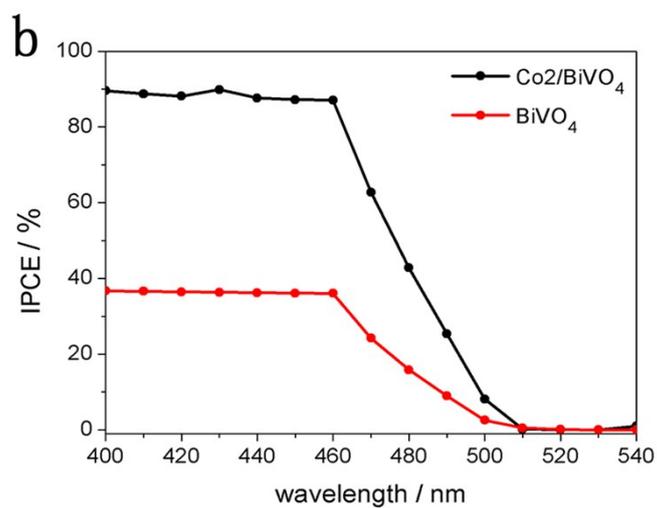
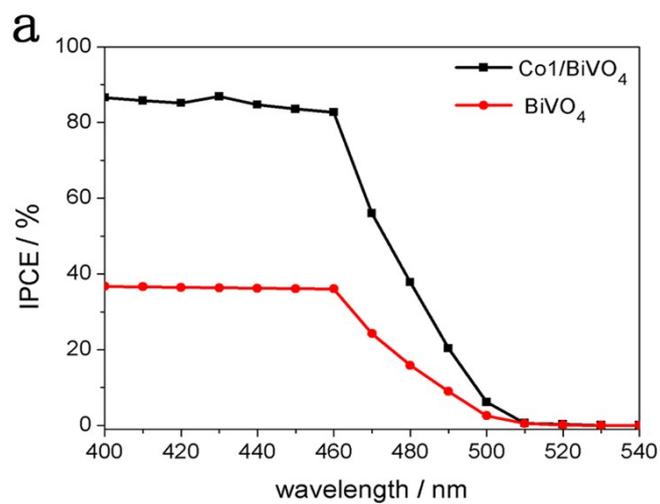


Figure S6. Incident photon-to-current efficiencies (IPCE) of (a) Co1/BiVO₄ and (b) Co2/BiVO₄ in comparison with the bare BiVO₄ at 1.23 V vs. RHE.

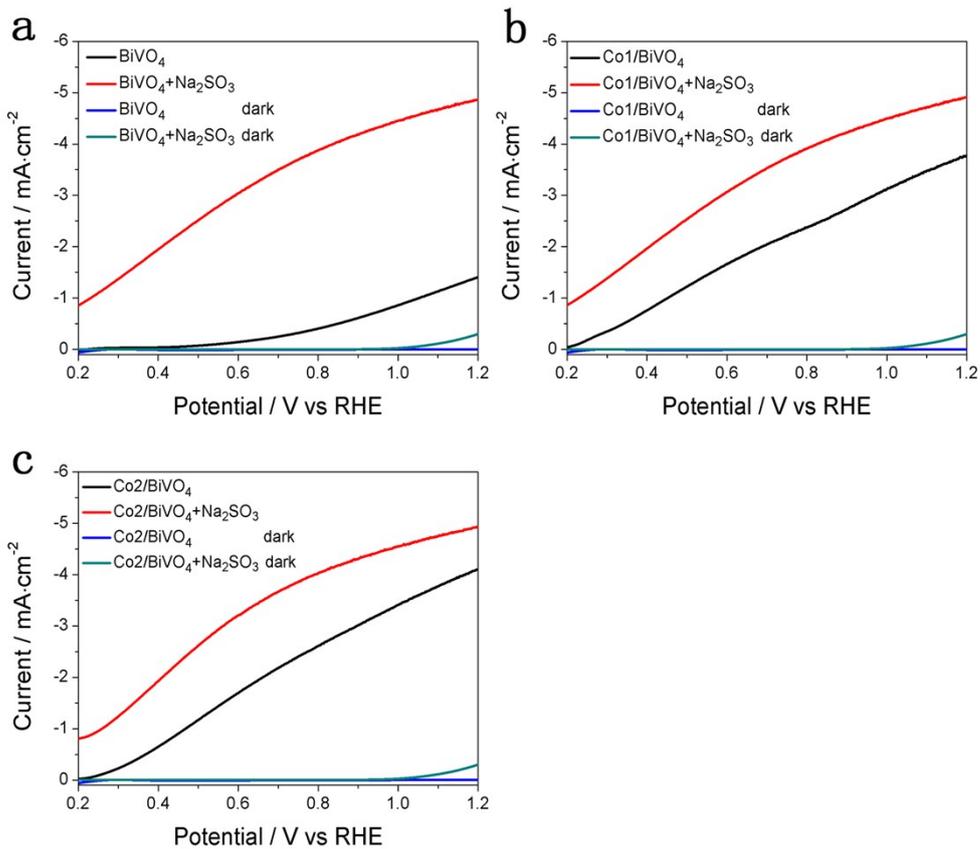


Figure S7. J–V curves of (a) BiVO₄, (b) Co1/BiVO₄, (c) Co2/BiVO₄ under AM 1.5G simulated sunlight with and without 0.5 M Na₂SO₃.

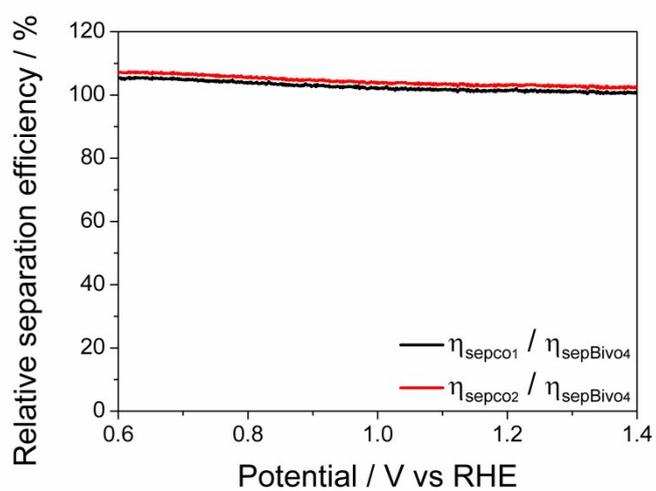


Figure S8. The relative charge separation efficiencies of Co1/BiVO₄ and Co2/BiVO₄ in comparison with the bare BiVO₄.

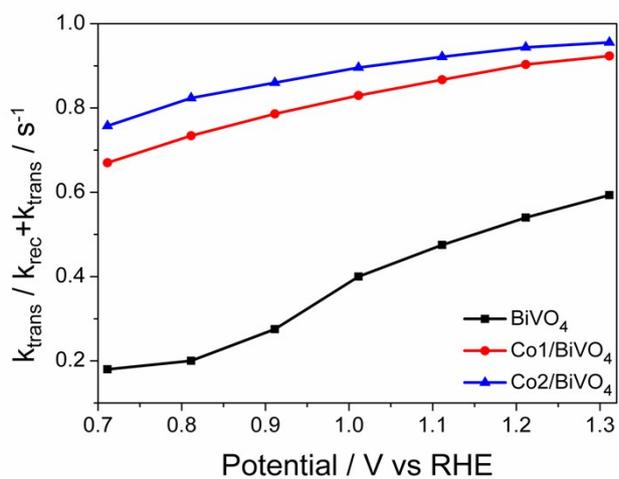


Figure S9. Charge transfer efficiencies of different anodes extracted from IMPS analysis.

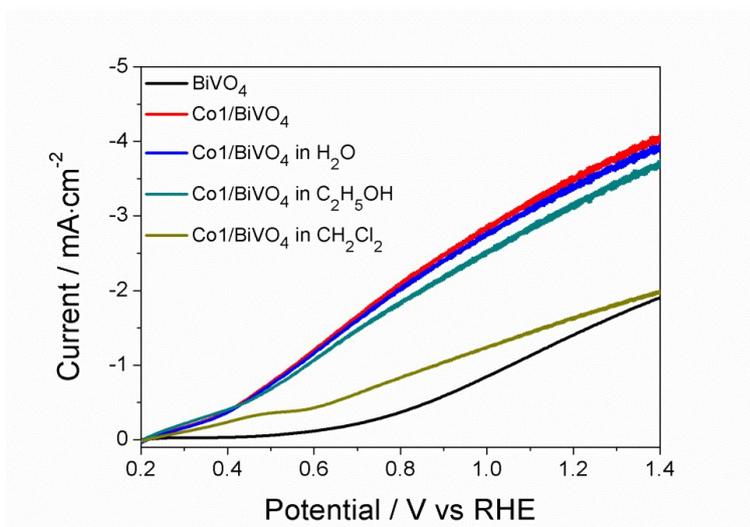


Figure S10. J-V curves of Co1/BiVO₄ after soaking in different solutions overnight.

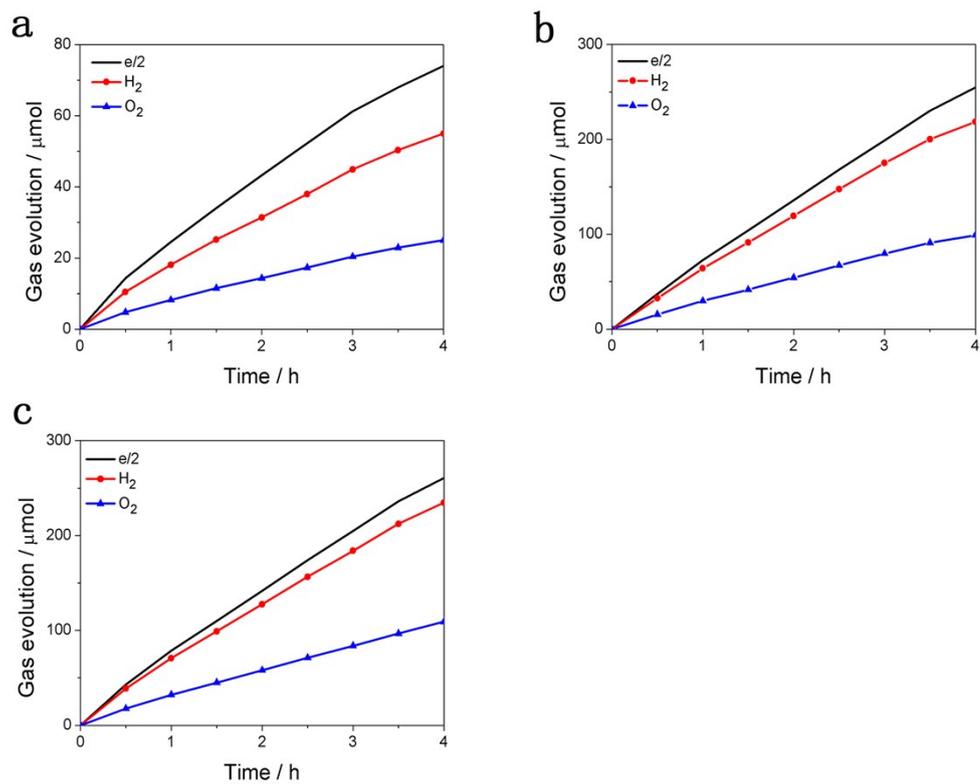


Figure S11. Oxygen and hydrogen evolution curves of (a) BiVO₄, (b) Co1/BiVO₄ and (c) Co2/BiVO₄ at 1.23V vs RHE.

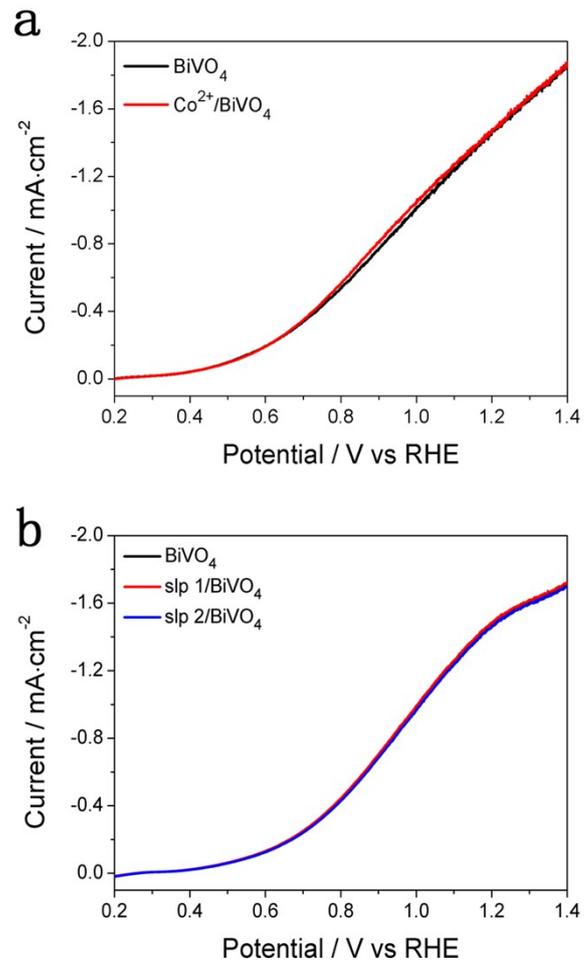


Figure S12. J–V curves of (a) BiVO₄ and Co(OAc)₂·4H₂O/BiVO₄ electrodes, (b) BiVO₄ and salophen/BiVO₄ under AM 1.5G simulated sunlight.

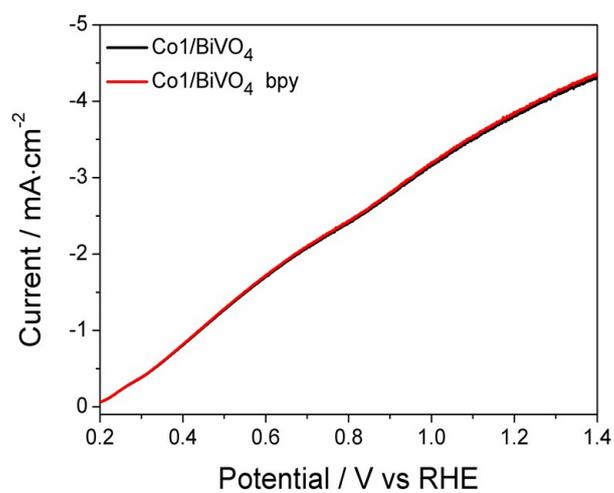


Figure S13. J–V curves of Co1/BiVO₄ in 0.1 M phosphate buffer solution with and without a certain amount of bpy under AM 1.5G simulated sunlight irradiation.

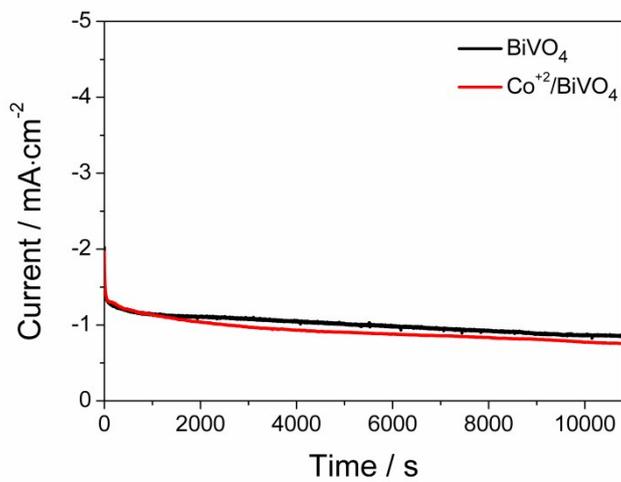


Figure S14. I-t curves of BiVO₄ (black), Co²⁺/BiVO₄ (red) at 1.23 V vs. RHE.

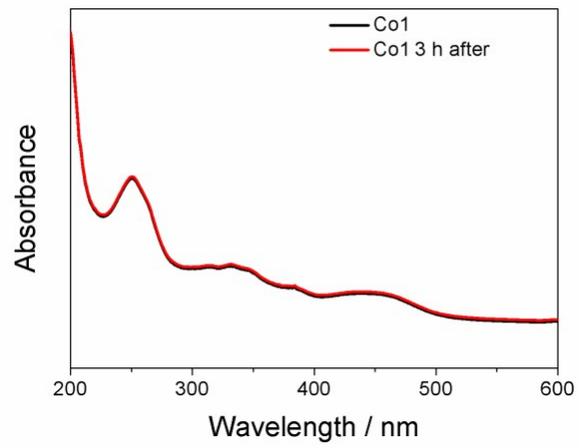


Figure S15. UV-Vis spectra of Co1 in solution before and after 3 h irradiation

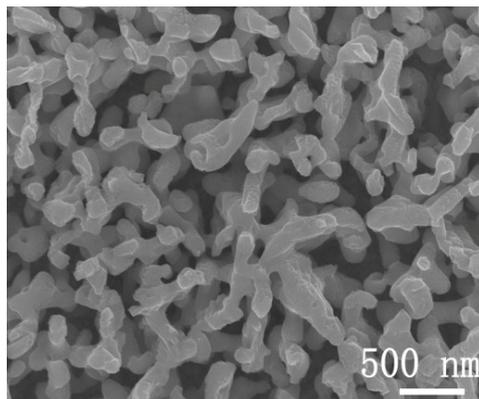


Figure S16. SEM image of Co1/BiVO₄ after 3 h PEC measurement.

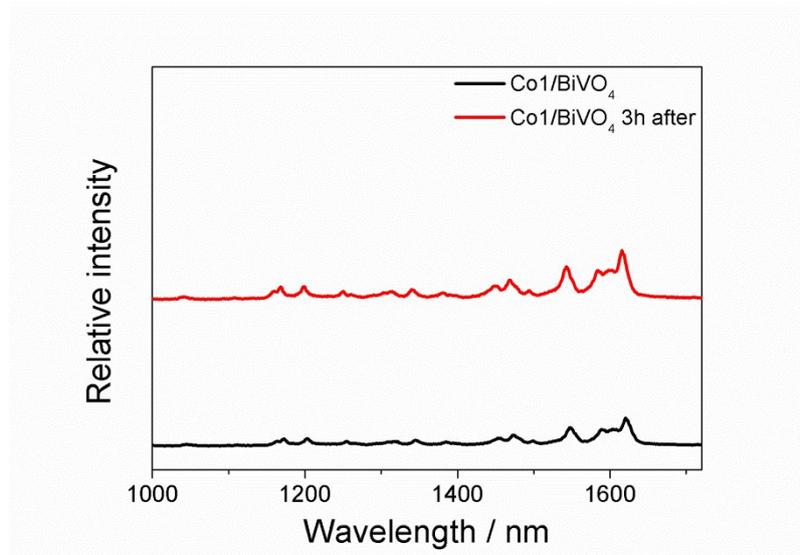


Figure S17. Raman spectra of Co1/BiVO₄ before and after 3 h PEC measurement.