

Supplementary Information

Highly Porous Carbon Flakes Derived from Cellulose and Nickel Phosphide Heterostructure towards Efficient Electrocatalysis of Oxygen Evolution Reaction

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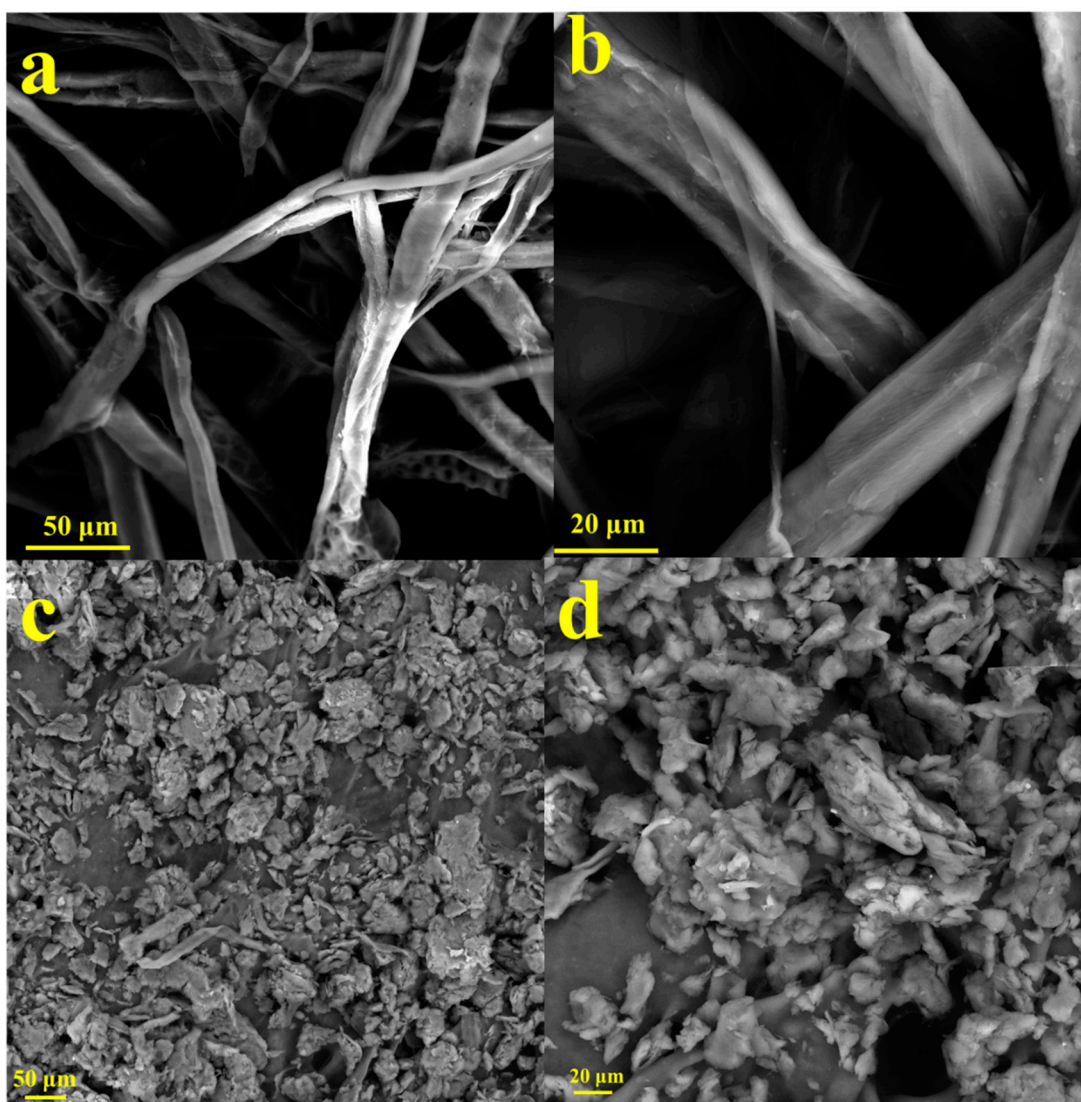


Figure S1. SEM images of pure cellulose fibers (a,b) and cellulose fibers after the ball-milling process (c,d).

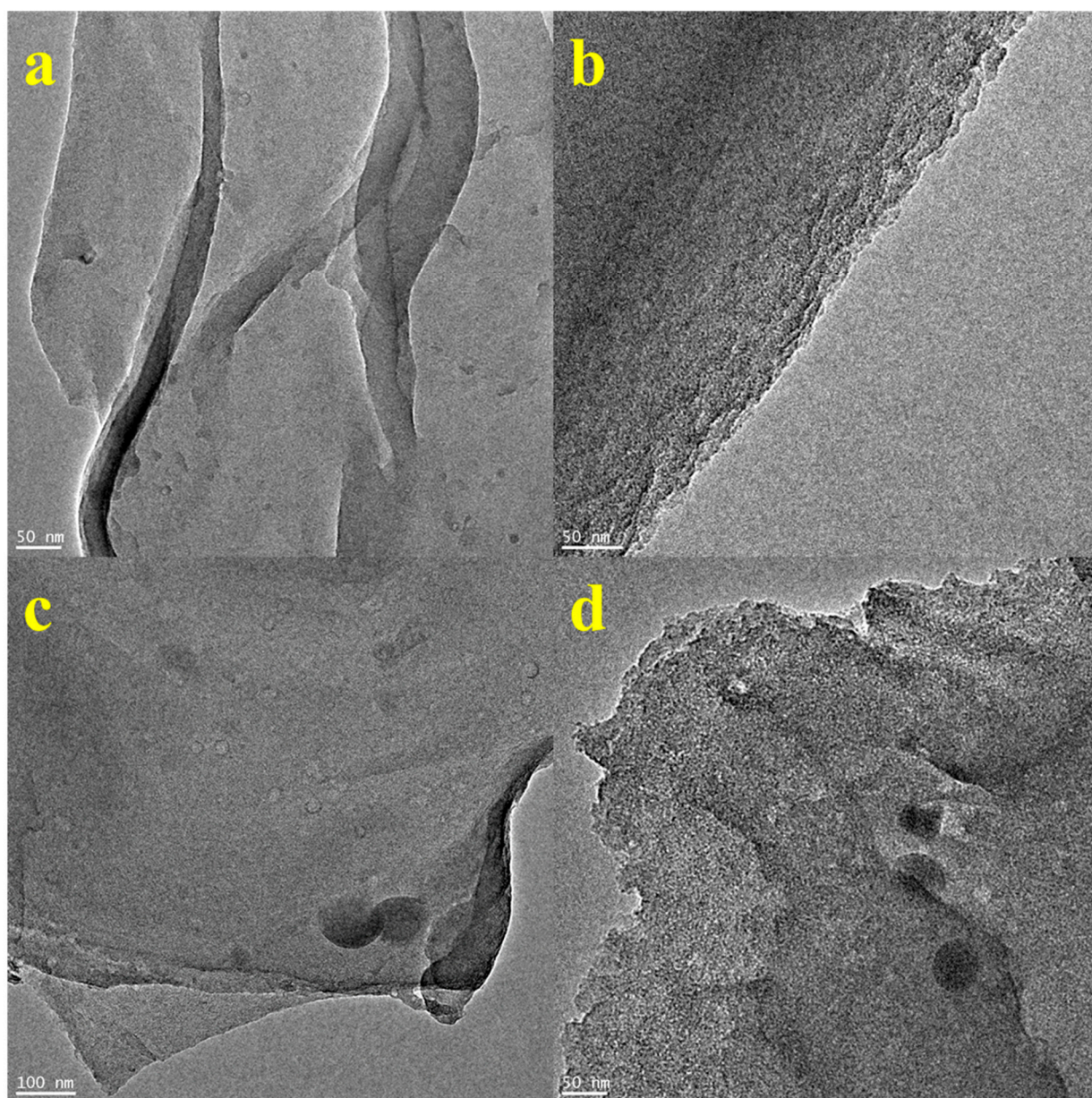


Figure S2. TEM images of (a) cel_carb_650, (b) cel_carb_750, (c) cel_carb_850, and (d) cel_carb_950.

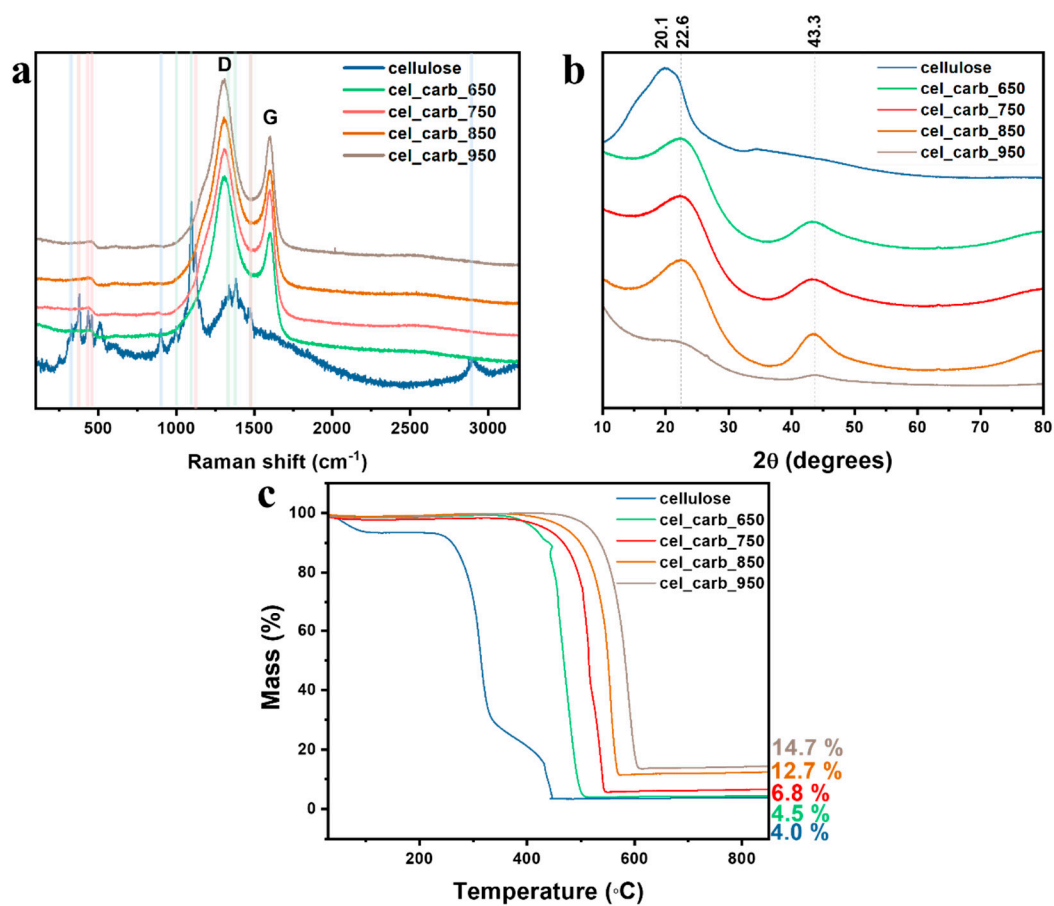


Figure S3. (a) Raman spectra, (b) XRD patterns, and (c) TGA patterns of cellulose and carbonized cellulose with different temperatures.

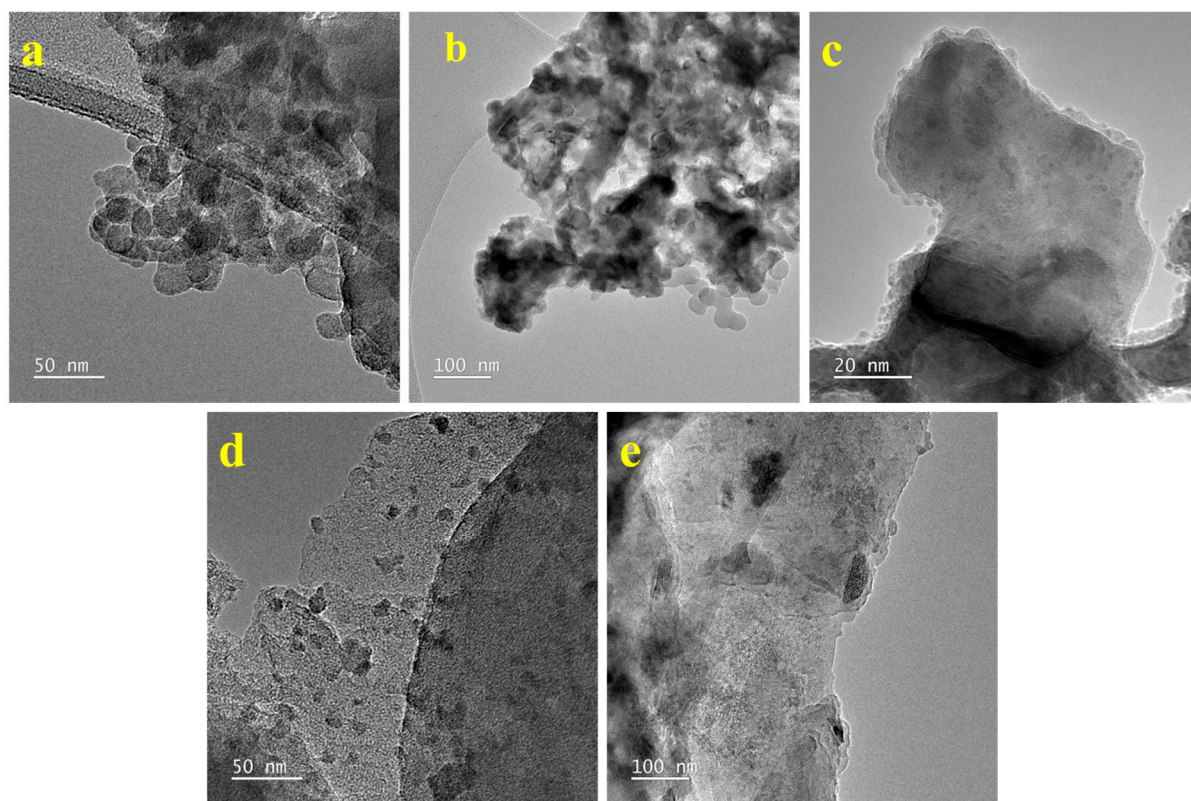


Figure S4. TEM images of (a) Ni_{12}P_5 _cel_100:1, (b) Ni_{12}P_5 _cel_10:1, (c) Ni_{12}P_5 _cel_1:1, (d) Ni_{12}P_5 _cel_1:10, and (e) Ni_{12}P_5 _cel_1:100.

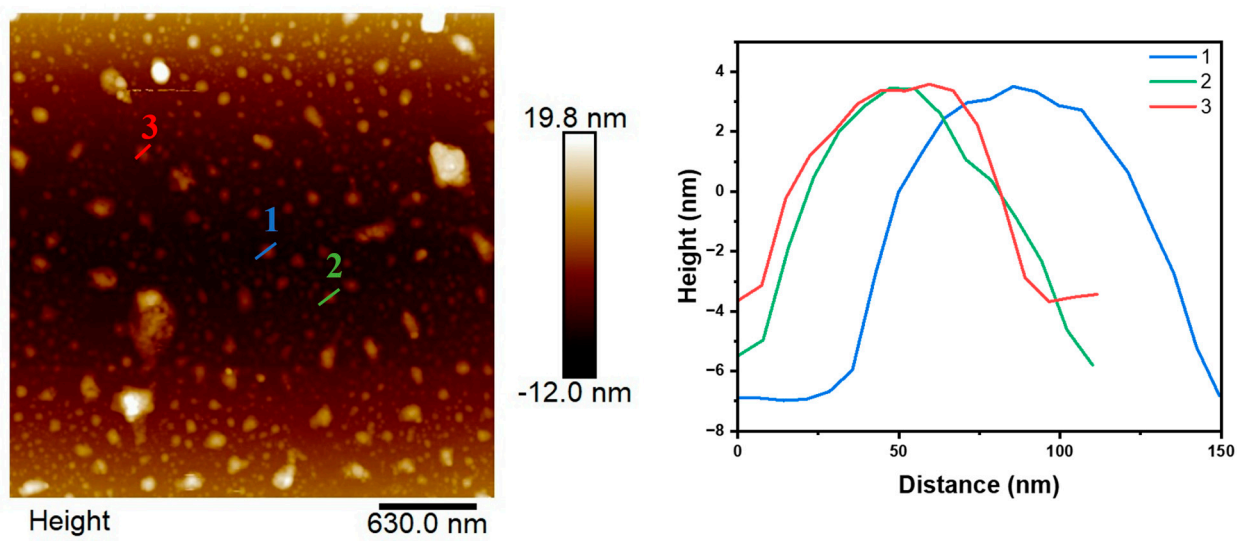


Figure S5. AFM image of Ni_{12}P_5 _cellulose_100:1 and corresponding height profile.

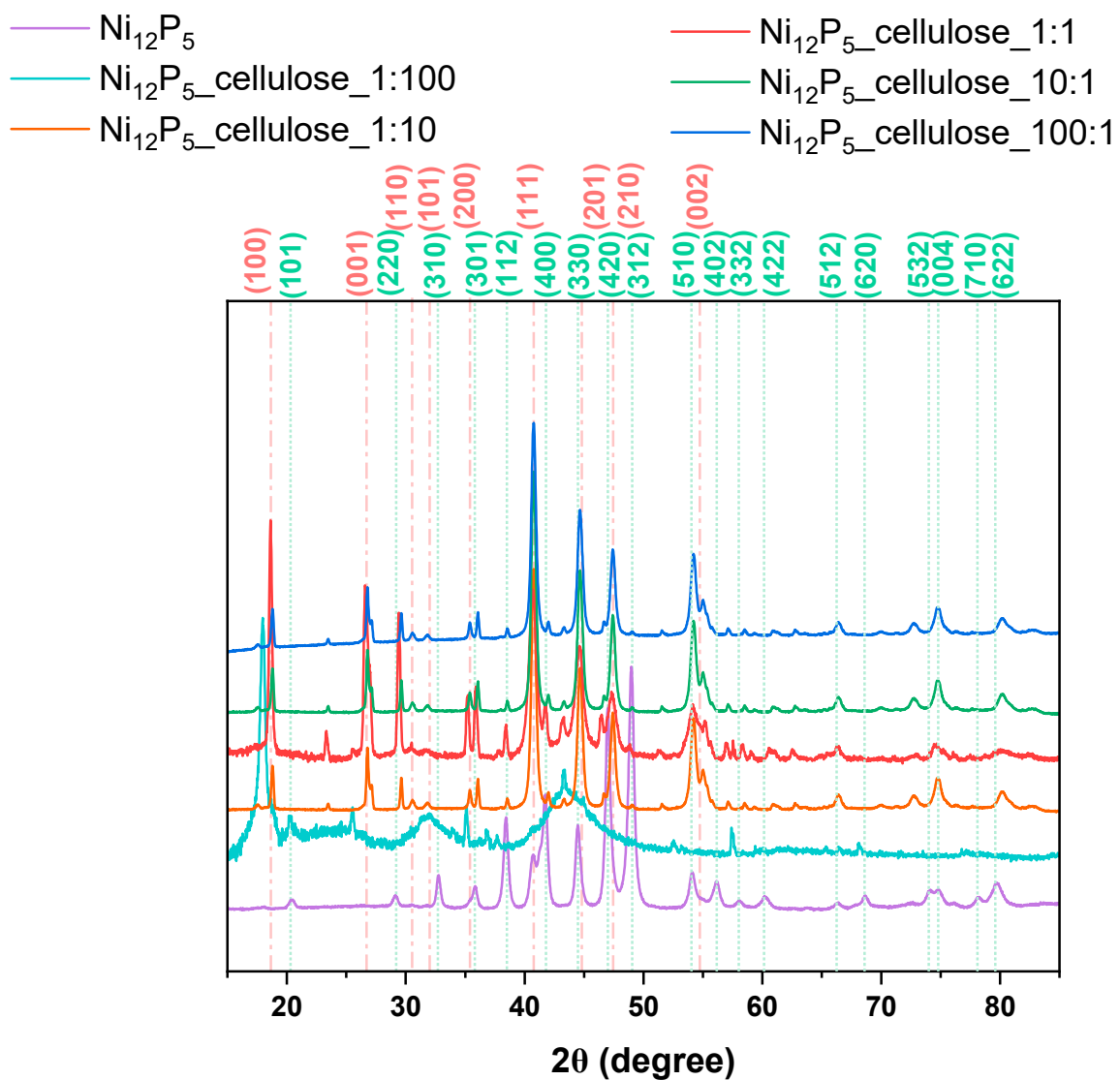


Figure S6. XRD patterns of Ni_{12}P_5 and composites of $\text{Ni}_{12}\text{P}_5_{\text{cellulose}}$ with different ratios.

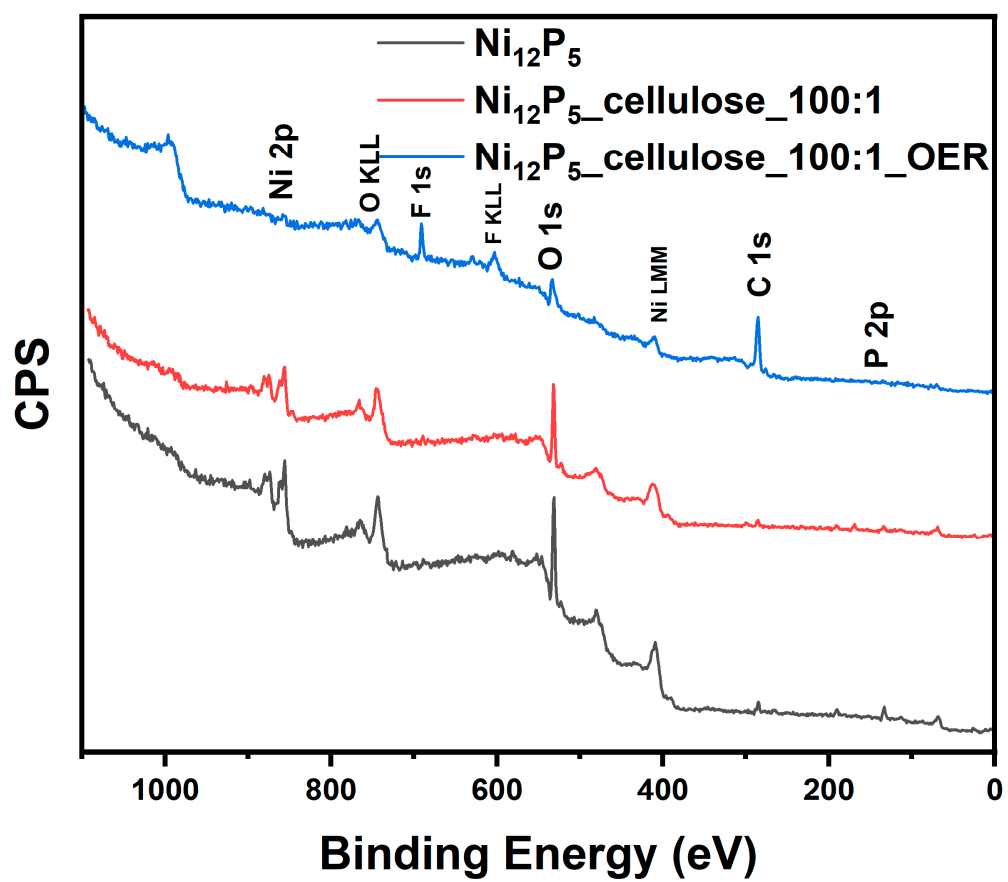


Figure S7. XPS survey scans of Ni_{12}P_5 , $\text{Ni}_{12}\text{P}_5_{\text{cellulose_100:1}}$, and $\text{Ni}_{12}\text{P}_5_{\text{cellulose_100:1_OER}}$.

Table S1. I_D/I_G ratio values and BET specific surface area of cellulose after the carbonization with different temperatures.

<i>Sample</i>	I_D/I_G ratio	Specific surface area (m²/g)
<i>cel_carb_650</i>	1.229	301 m ² /g
<i>cel_carb_750</i>	1.309	342 m ² /g
<i>cel_carb_850</i>	1.192	374 m ² /g
<i>cel_carb_950</i>	1.484	589 m ² /g