SUPPORTING INFORMATION

Repurposing of Fruit Peel Waste as a Green Reductant for Recycling of Spent Lithium-ion Batteries

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This supporting document has 5 pages, 3 figures, and 1 table.

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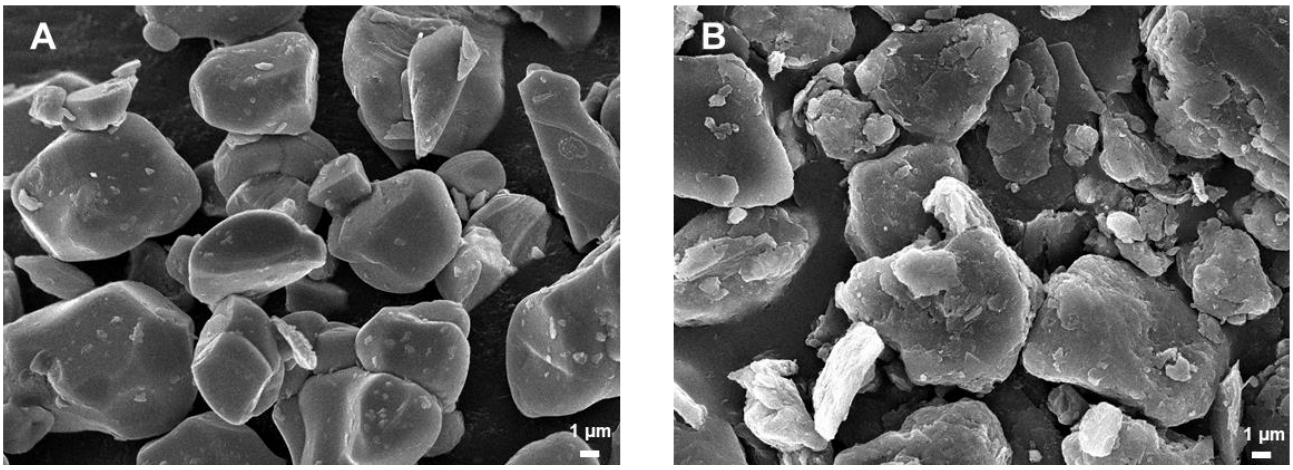
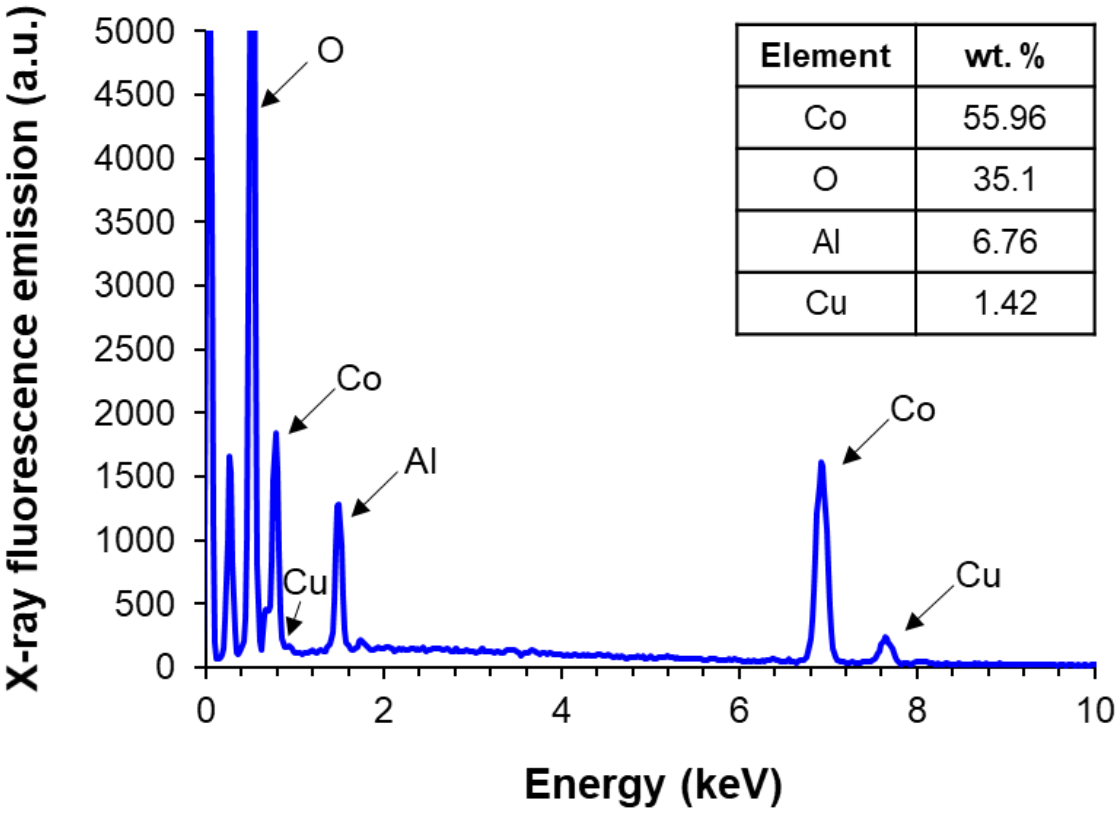


Figure S1. SEM images of **(A)** pure LCO and (B) LIBs black mass. Scale bar = 1 µm.

Table S1. Compositional analysis of orange peel (OP)

Analysis	Orange Peel	Percent (%)	Technique[a]
Proximate composition	Moisture	46.7	Oven drying
	Volatiles	40.1	Thermogravimetric analysis (TGA)
	Ash	1.8	
	Fixed carbon	11.4	
Elemental composition (dry basis)	C	40.9	CHNS elemental analyser
	H	6.3	
	O	48.4	
	N	0.9	
Lignocellulosic composition (dry basis)	Cellulose	24.0	Chemical extraction
	Hemicellulose	50.8	
	Lignin	20.7	

a. Please refer to "Composition analysis" in Experimental Section for detailed description of the techniques employed in this table.



Element	wt. %
Co	55.96
O	35.1
Al	6.76
Cu	1.42

Figure S2. X-ray fluorescence spectrum of the recovered cobalt hydroxide. Relative (wt. %) abundance of the detected elements.

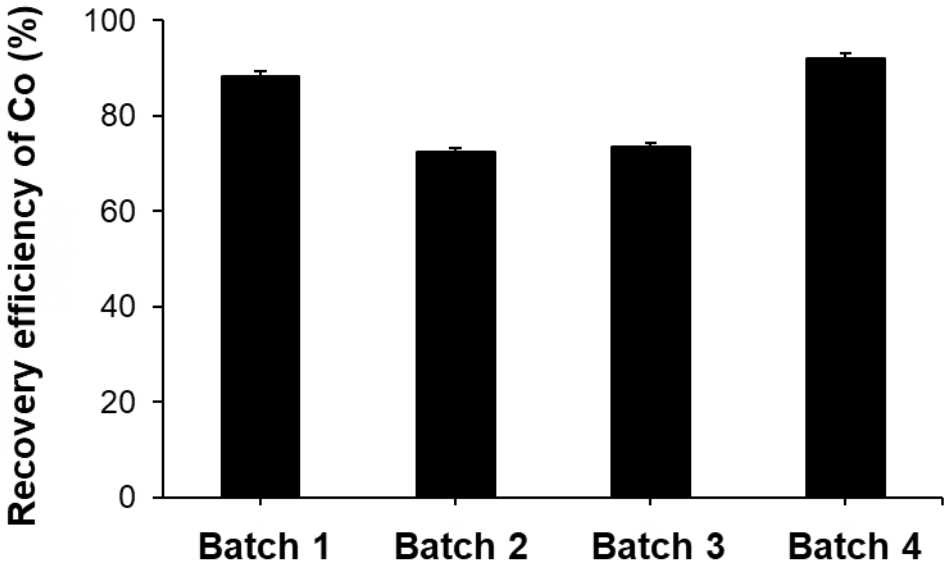


Figure S3. Recovery efficiency of Co from 4 different batches of the OP leaching solution.