Supplementary Materials

Effects of Central Metal Ion on Binuclear Metal Phthalocyanine-Based Redox Mediator for Lithium Carbonate Decomposition

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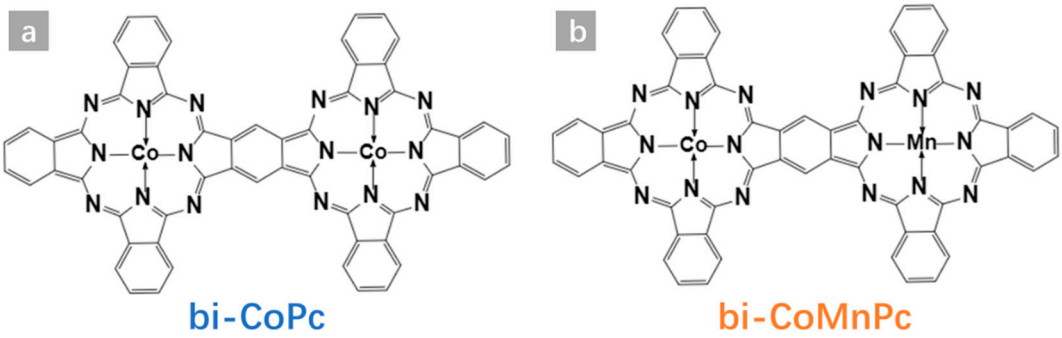

Figure S1. The structures of bi-CoPc and bi-CoMnPc

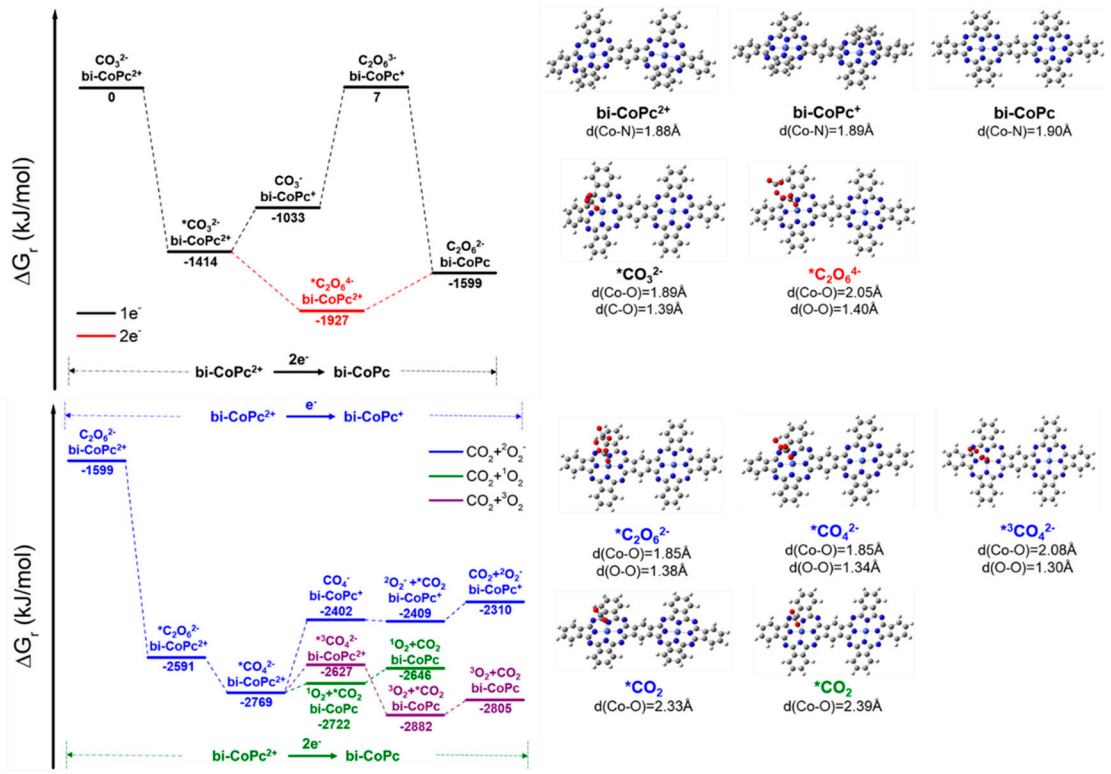

Figure S2. The Li_2CO_3 decomposition pathways on bi-$CoPc^{2+}$ and corresponding structures with bi-$CoPc^{2+}$→bi-CoPc

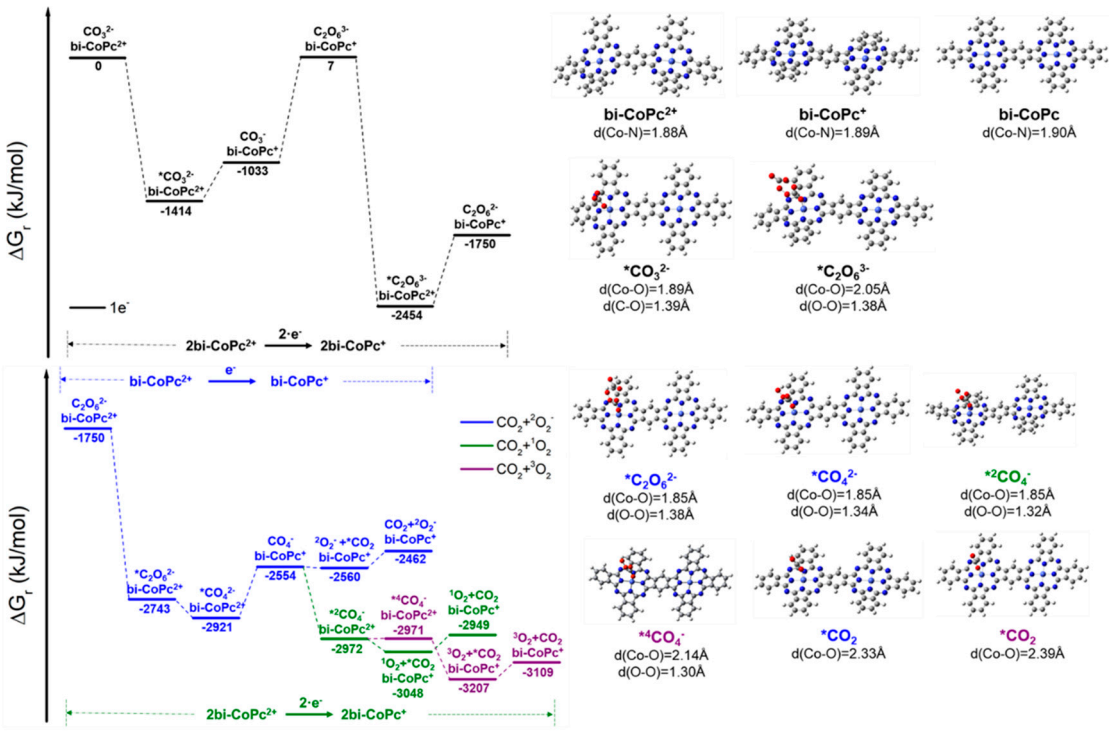

Figure S3. The Li_2CO_3 decomposition pathways on pristine bi-$CoPc^{2+}$ and the corresponding structures with 2bi-$CoPc^{2+}$→2bi-$CoPc^{+}$

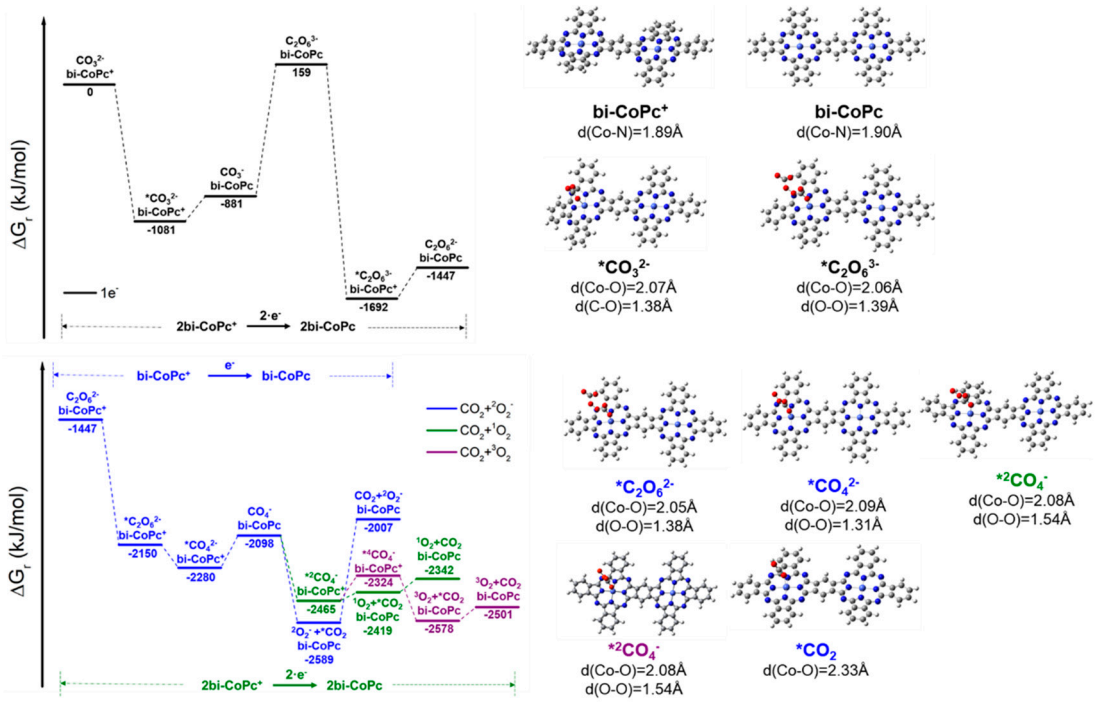

Figure S4. The Li_2CO_3 decomposition pathways on bi-CoPc$^+$ and the corresponding structures with 2bi-CoPc$^+$→2bi-CoPc

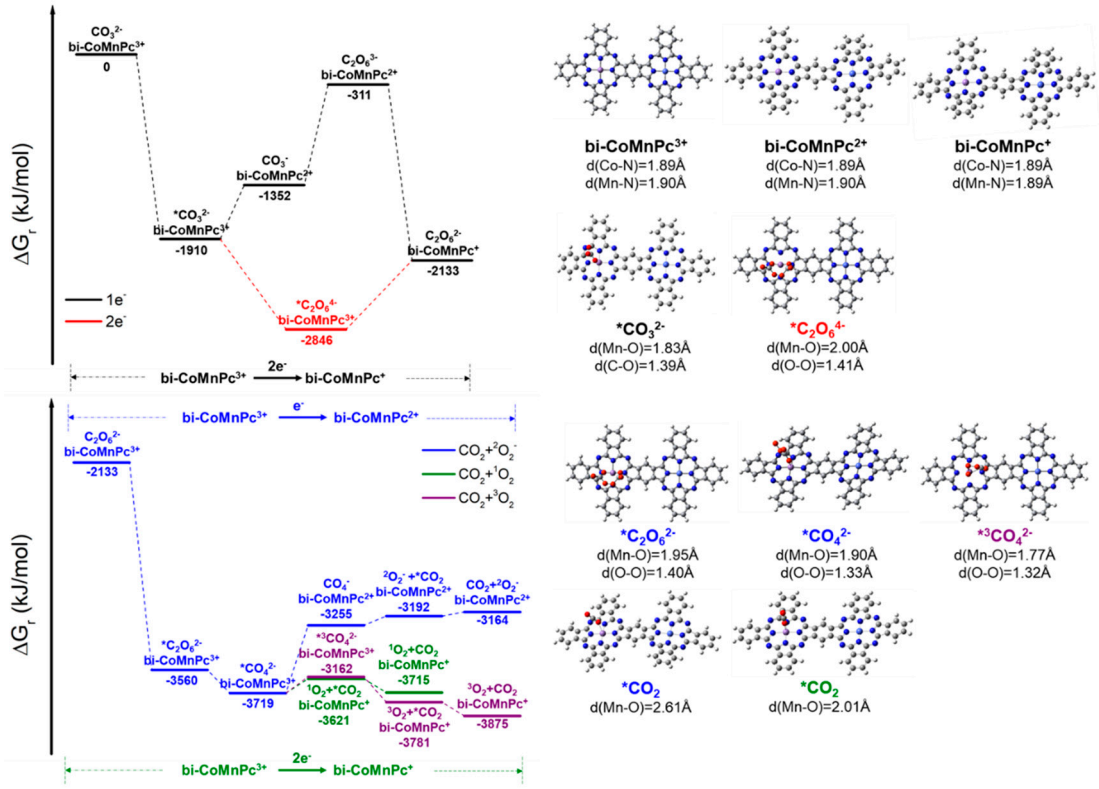

Figure S5. The Li_2CO_3 decomposition pathways on pristine bi-CoMnPc^{3+} and the corresponding structures with bi-CoMnPc^{3+}→bi-CoMnPc$^+$

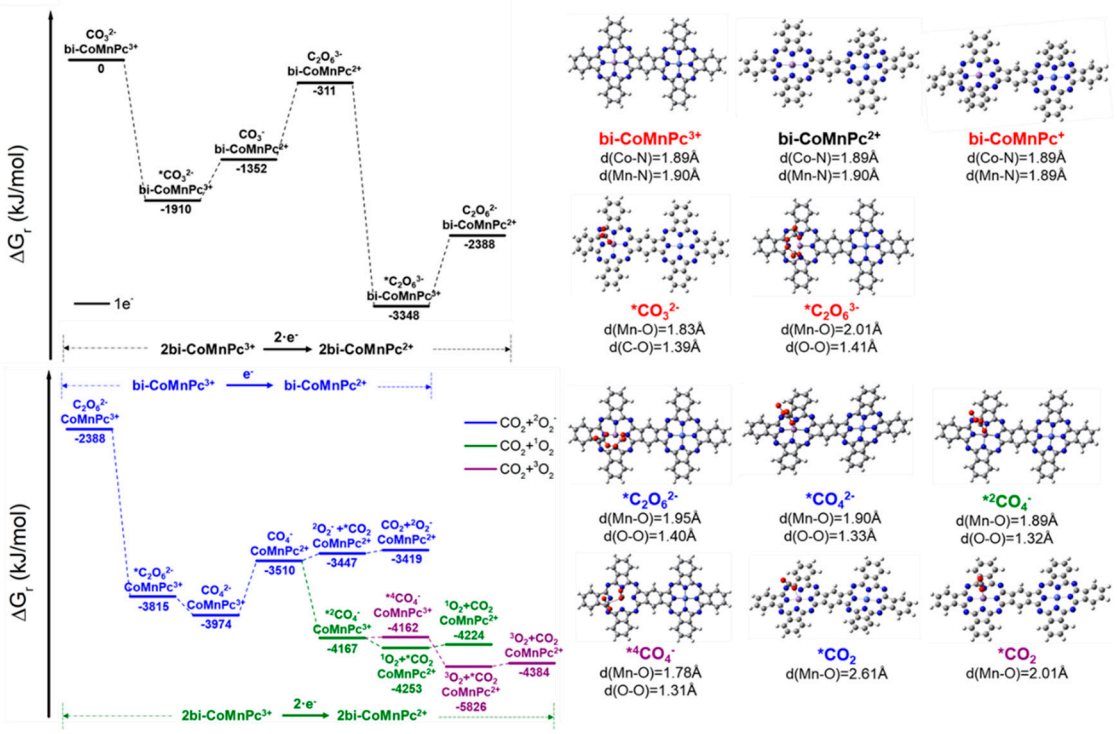

Figure S6. The Li_2CO_3 decomposition pathways on pristine bi-CoMnPc^{3+} and the corresponding structures with 2bi-CoMnPc^{3+}→2bi-CoMnPc^{2+}

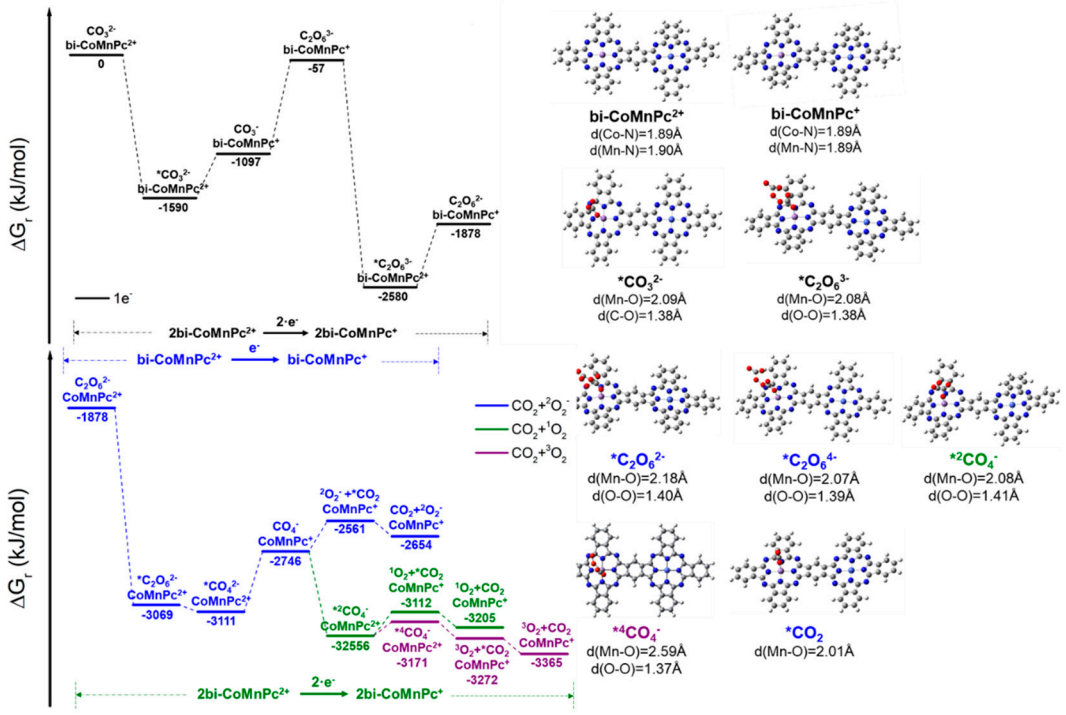

Figure S7. The Li_2CO_3 decomposition pathways on pristine bi-CoMnPc^{2+} and the corresponding structures with 2bi-CoMnPc^{2+}→2bi-CoMnPc^{+}

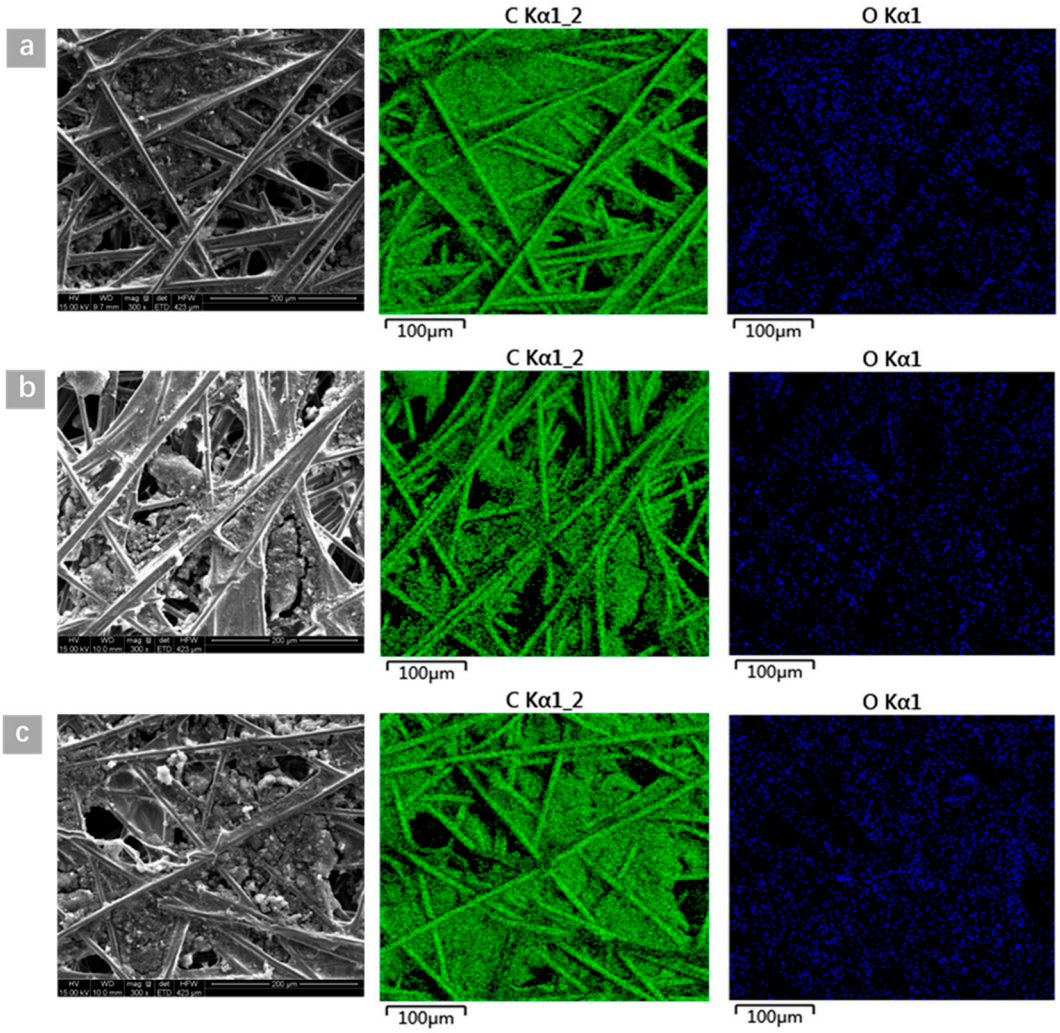

Figure S8. The SEM images and EDS mapping results of carbon and oxygen for the air cathode (a) without RM, (b) with bi-CoPc and (c) with bi-CoMnPc after 1 discharge-charge cycle.

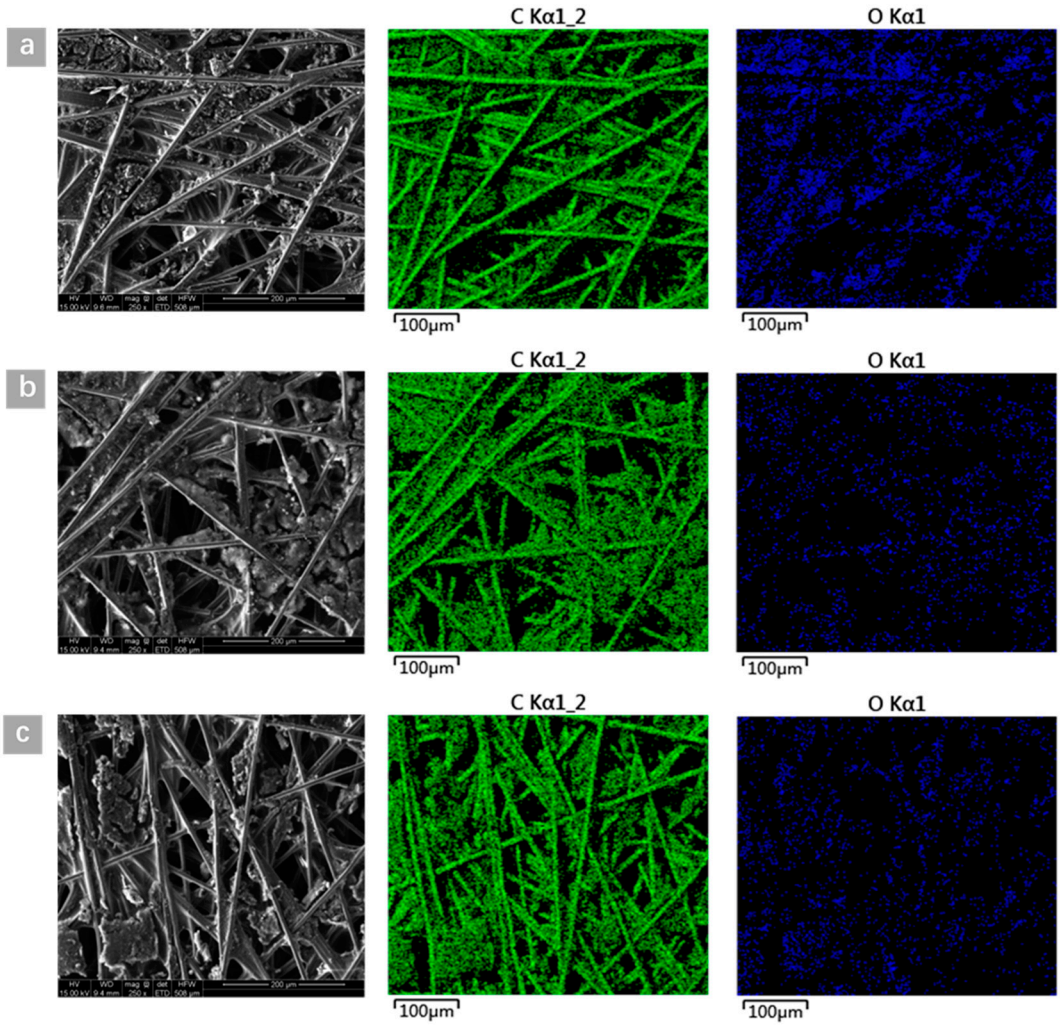

Figure S9. The SEM images and EDS mapping results of carbon and oxygen for the air cathode (a) without RM, (b) with bi-CoPc and (c) with bi-CoMnPc after 10 discharge-charge cycles.

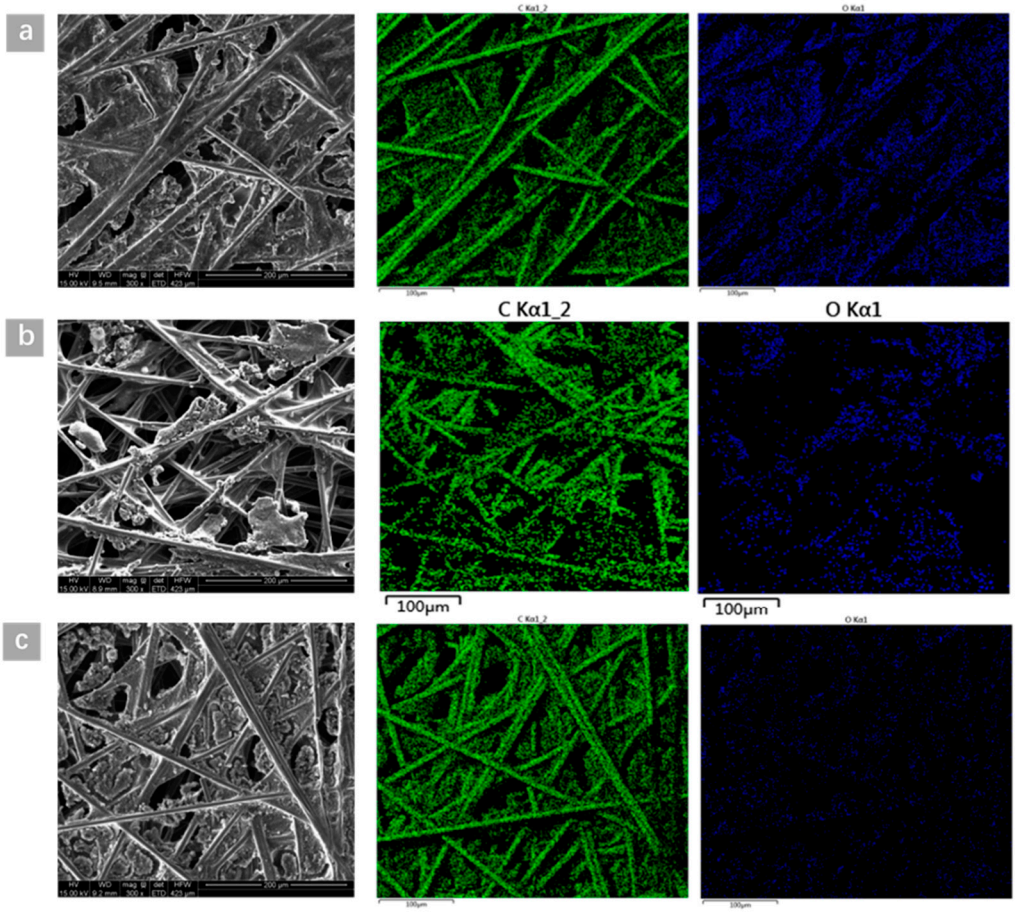

Figure S10. The SEM images and EDS mapping results of carbon and oxygen for the air cathode (a) without RM, (b) with bi-CoPc and (c) with bi-CoMnPc after 30 discharge-charge cycles.

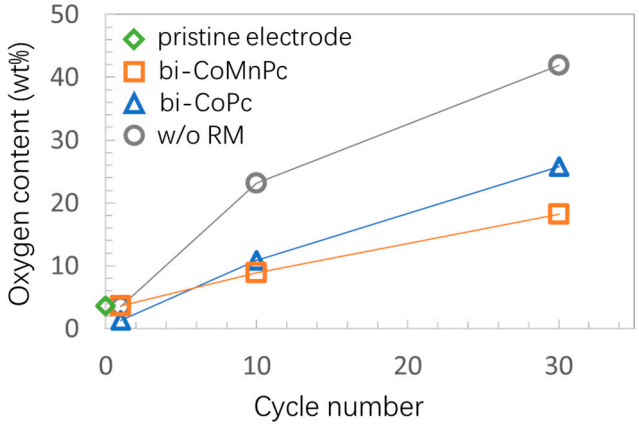

Figure S11. The oxygen content in the cycled air cathodes according to EDS results.