

Table S1. Summary of ORR and OER electrocatalytic activities of the reported various types of bifunctional based perovskite electrocatalysts.

Methods	Electrocatalysts	Typical Morphology	Onset Potential ORR (V)	Onset Potential OER (V)	Electrolytes (M)	Ref.
Oxalate precursor route	CaCu ₃ Ti ₄ O ₁₂	Nanoparticles	0.83	1.50	0.1 KOH	[1]
Hot plate	Fluorinated-copper manganese oxide (FCMO)	-	0.94	1.62	0.1 KOH	[2]
Sol-gel	La _{0.8} Sr _{0.2} Mn _{0.95} Sc _{0.025} O _{3-δ}	Micro structured particles	0.96	-	0.1 KOH	[3]
Pyrolysis	N-MWCNTs-Co	Foam like structure	0.334	0.364	0.1 KOH	[4]
Electro spinning	LaNi _{0.85} Mg _{0.15} O ₃ (LNMO NFs)	Nanofiber	0.45	-	0.1 KOH	[5]
Polymer-assisted	LaCo _{1-x} Ni _x O ₃	Nanoparticles	-0.47	-	0.1 KOH	[6]
Wet-chemical	Ni & Mn promoted Co ₃ O ₄	Mesoporous	0.87	-	0.1 KOH	[7]
Reverse hydrolysis	Nanostructured LaNiO ₃ /Nitrogen doped carbon (NC)	Nanoparticles	-	0.4	0.1 KOH	[8]
Sol-gel	LaNi _{1-x} Fe _x O ₃ (x= 0, 0.1, 0.2, 0.6)	Nanoparticles	-	0.64	0.1 KOH	[9]
Polymer-assisted chemical solution (PACS)	La _{0.8} Sr _{0.2} MnO ₃ (LSM)	Nanoparticles	-0.09	-	0.1 KOH	[10]

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