Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supporting Information

Graphene-supported binary active $Mn_{0.25}Co_{0.75}O$ solid solution derived from CoMn-layered double hydroxide precursor for highly improved lithium storage

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Figure S1

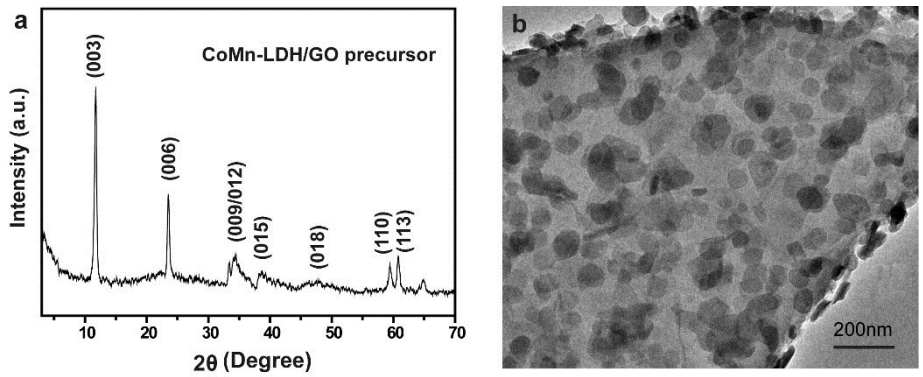

Figure S1 (a) XRD patterns and (b) TEM image of CoMn-LDH/GO precursor.

Figure S2

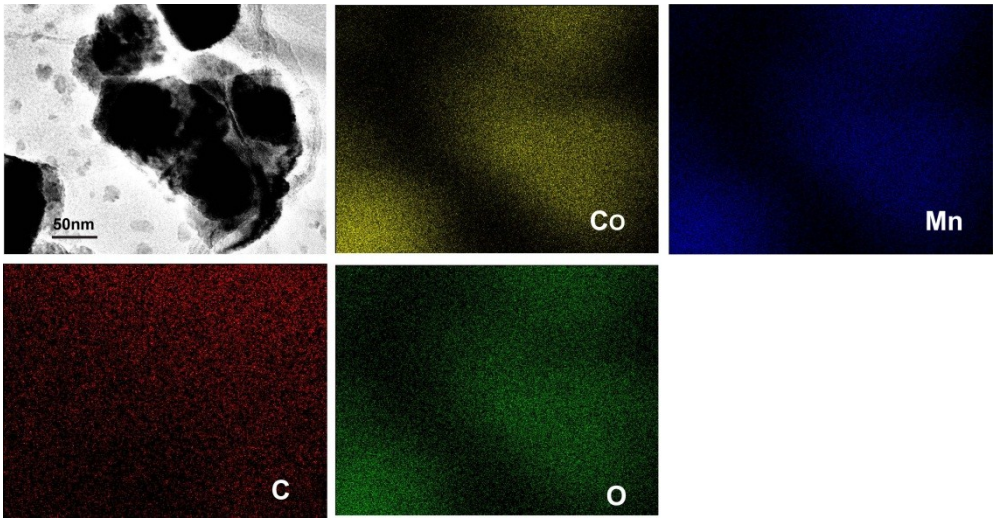

Figure S2 The element mapping images of Co, Mn, O, and C elements of the $Mn_{0.25}Co_{0.75}O$/G composite.

Figure S3

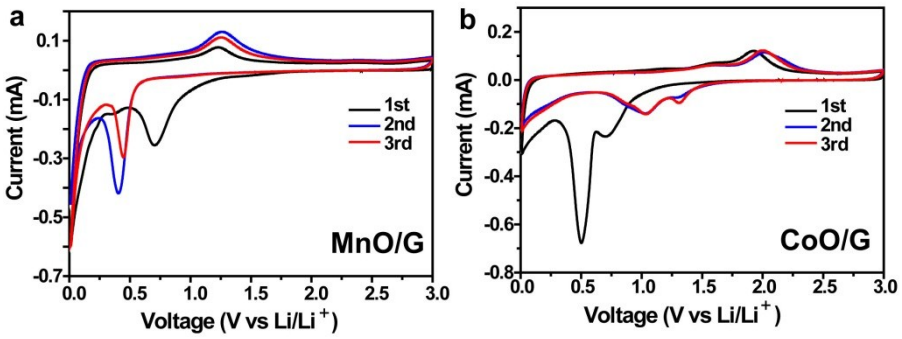

Figure S3 The first three cyclic voltammograms curves of (a) MnO/G and (b) CoO/G between 0 and 3.0V at a scan rate of 0.1 mV s^{-1}.

Figure S4

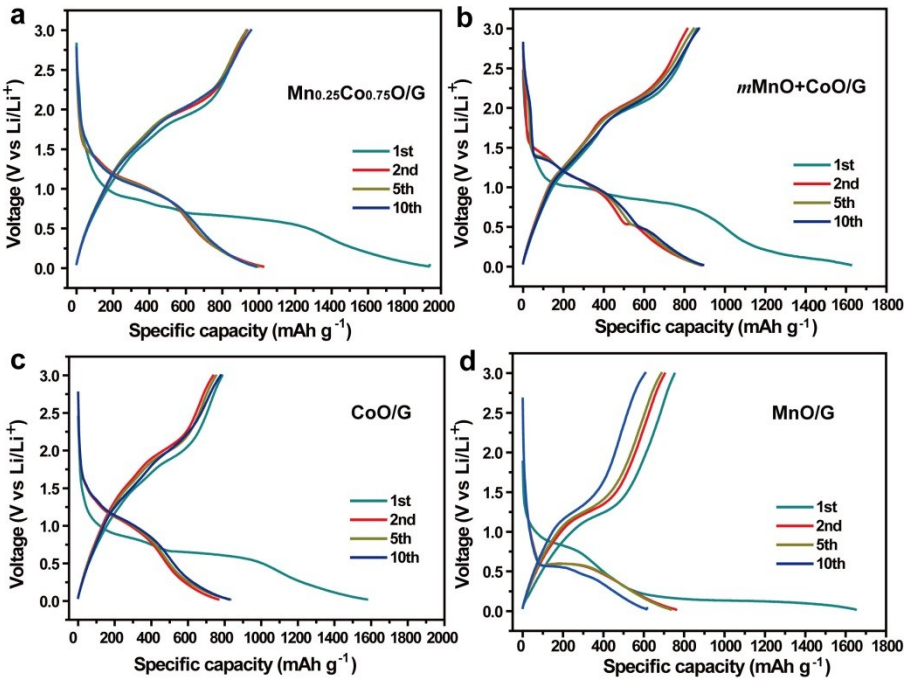

Figure S4 The charge/discharge profiles of (a) $Mn_{0.25}Co_{0.75}O$/G, (b) *m*CoO+MnO/G, (c) CoO/G, and (d) MnO/G between 0.01 and 3.0 V at a current density of 100 mA g^{-1}.

Table S1

Table S1 Comparison of specific capacities between the Co,Mn-containing TMO anode nanomaterials for LIBs.

Anode nanomaterias	Current rate ($mA\ g^{-1}$)	Cycle number	Specific Capacities ($mAh\ g^{-1}$)	Ref.
MnO-CoO (R_{Co}= 50)	100	20	170	27
$CoMn_2O_4$	100	100	325	37
Co doped NiO	0.1C	50	708	38
Mn_2CoO_4/RGO	100	50	625	39
$Mn_{0.25}Co_{0.75}O$/G	100	100	980	This study
$CoMn_2O_4$/C	1000	50	715	40
$MnCo_2O_4$	1000	1000	740	41
$CoMn_2O_4$	1000	1000	420	41
$Mn_{0.25}Co_{0.75}O$/G	2000	1300	1087	This study