Effects on High Concentration $LiPF_6$ Based Carbonate Ester Electrolyte for the Electrochemical Performance of High Voltage Layered $LiNi_{0.6}Co_{0.2}Mn_{0.2}O_2$ Cathode

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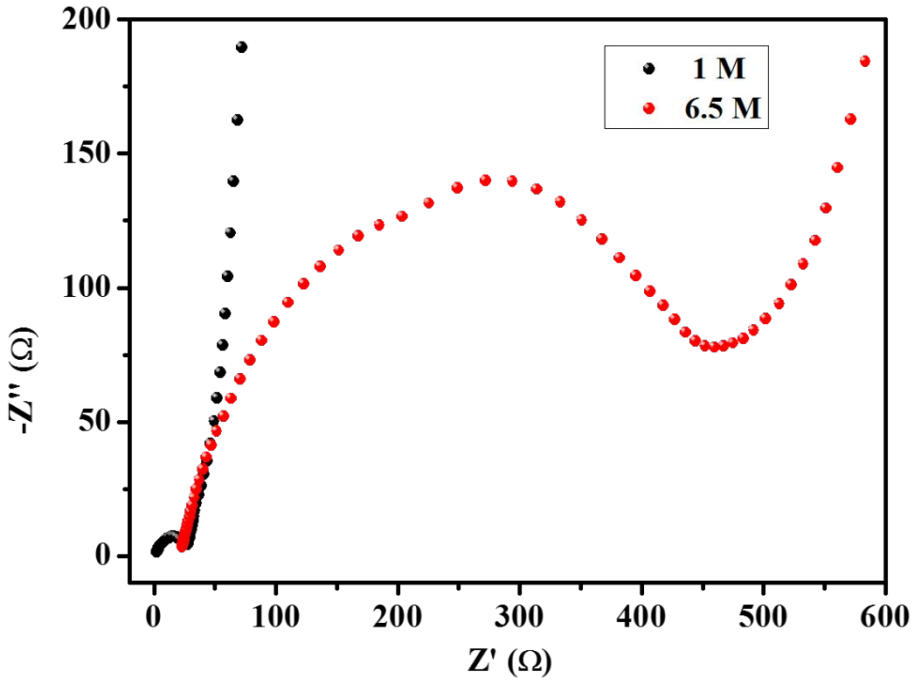

Figure. S1 Impedance plots of the $LiNi_{0.6}Co_{0.2}Mn_{0.2}O_2$/electrolyte/Li cell with the 1M diluted electrolyte and 6.5 M high concentration electrolyte after the third cycle.

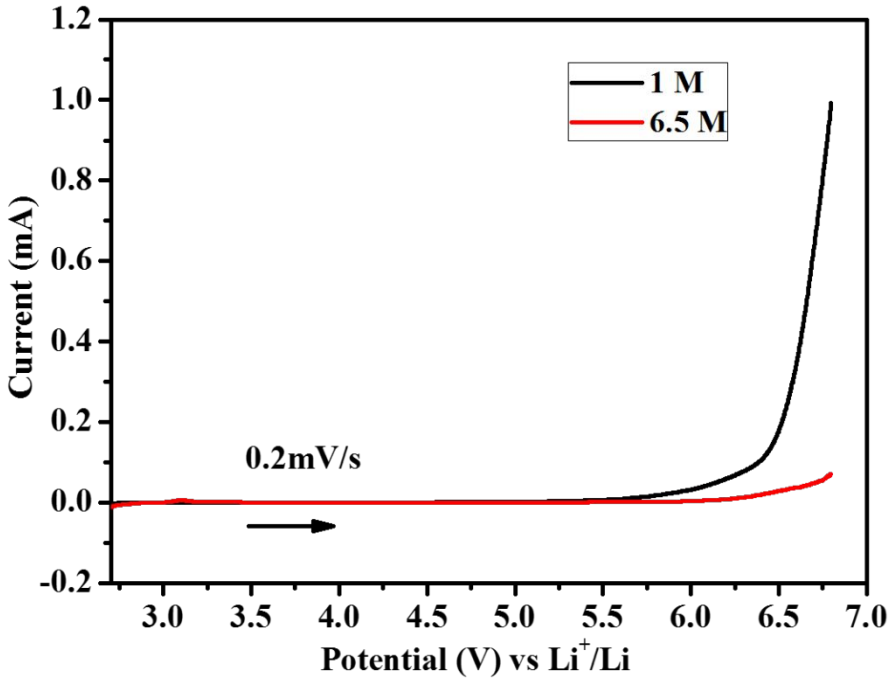

Figure. S2 Current-potential curve of Li/electrolyte/Pt cell: Pt as the working electrode and Li as the counter and the reference electrode, at a scan rate of 0.2 mV s^{-1} from 2.7 to 6.8V.

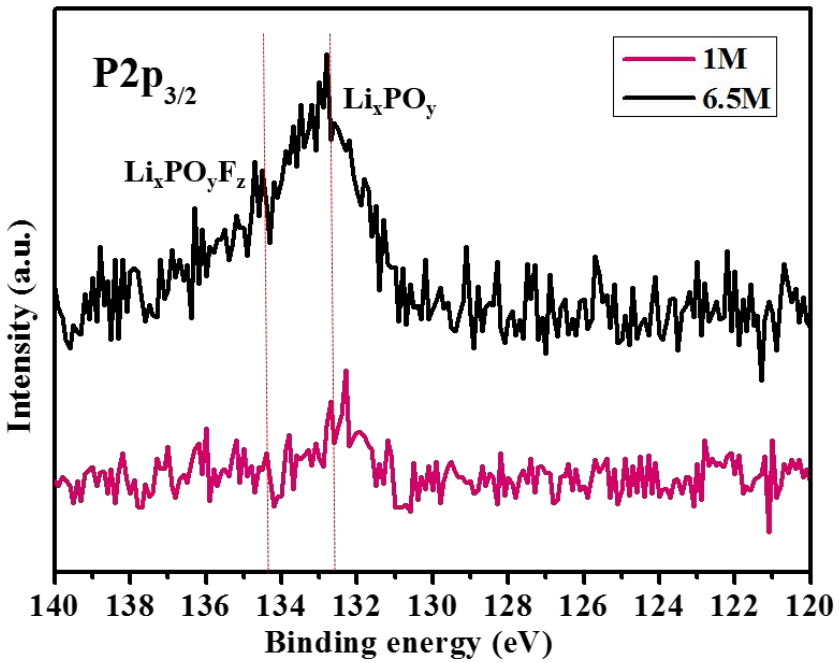

Figure. S3 XPS analyses on SEI formed on $LiNi_{0.6}Co_{0.2}Mn_{0.2}O_2$ cathode surfaces in 1M and 6.5M EC/DMC-$LiPF_6$ electrolytes, $P2p_{3/2}$ spectra are presented as indicated.

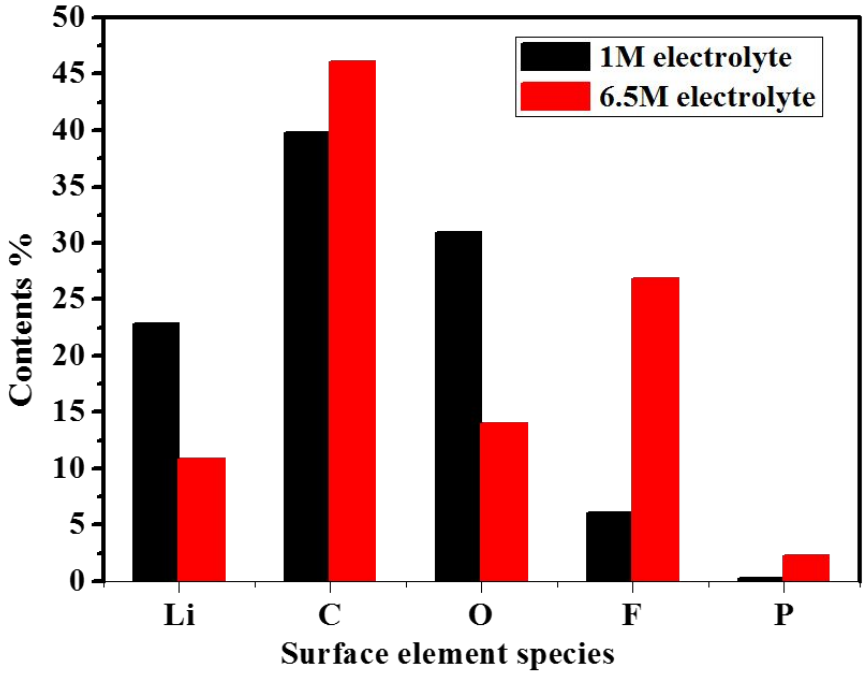

Figure. S4 The surface element distribution of $LiNi_{0.6}Co_{0.2}Mn_{0.2}O_2$ cathode by the XPS analysis.