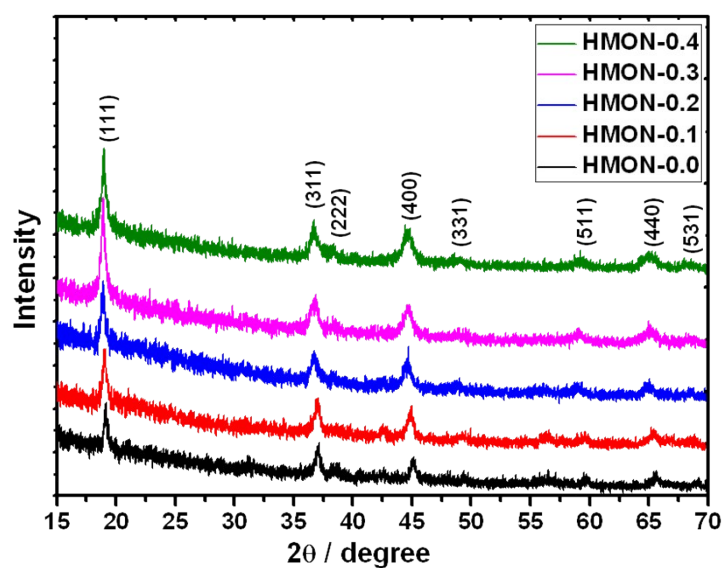


### Supplementary Information

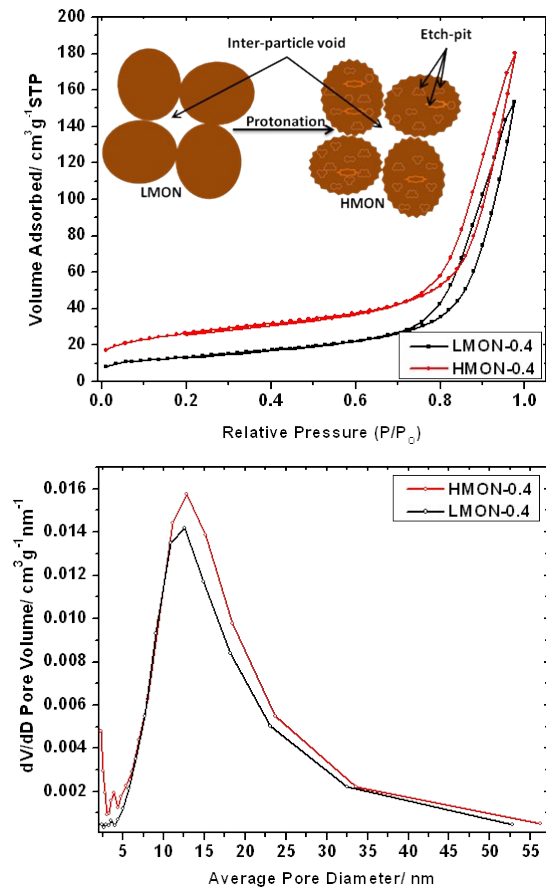
## Single Step Synthesis of Magnesium Doped Lithium Manganese Oxide Ionsieve Nanomaterial and SPES/Ionsieve Composite Membrane for the Separation of Lithium

Hitesh Saravaia<sup>1\*</sup>, Hariom Gupta<sup>1\*</sup>, Vaibhav Kulshrestha<sup>2</sup>

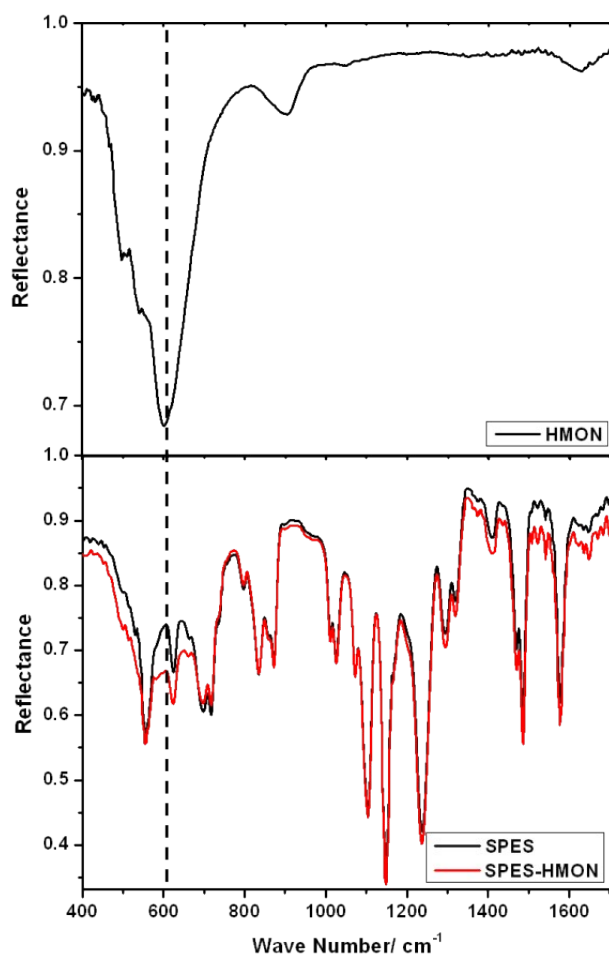
<sup>1</sup>Analytical Division and Centralized Instrument Facility, <sup>2</sup>Electro Membrane Process Division, CSIR-Central Salt and Marine Chemical Research Institute, Bhavnagar, India



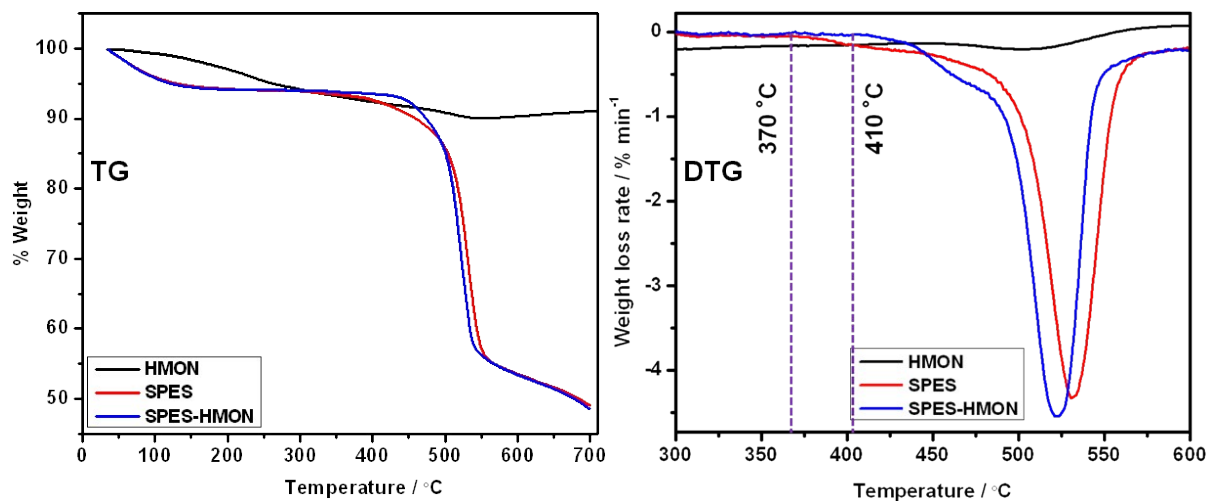
**Figure S1.** Powder XRD of Protonated Samples



**Figure S2.**  $N_2$  adsorption-desorption BET isotherms and BJH pore size distribution



**Figure S3.** FTIR spectra of SPES and SPES-HMON membranes



**Figure S4.** TG and DTG results of HMON, SPES and SPES-HMON composite membranes