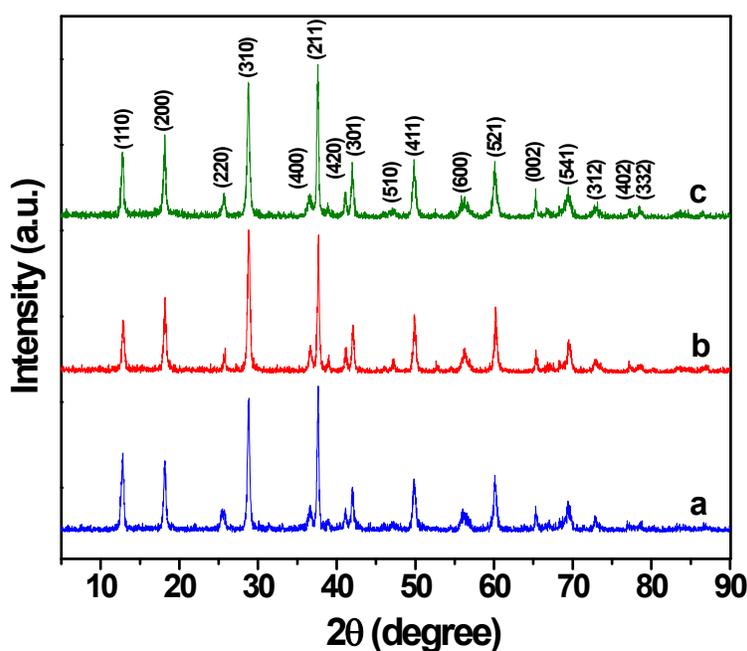


## Supporting Data

### A facile, morphology-controlled synthesis of potassium-containing manganese oxide nanostructures for electrochemical supercapacitor application

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**Fig. S1** Powder XRD patterns (a, b and c) of cryptomelane samples (A, B and C) obtained by calcining birnessite samples at 800 °C for 2 h. All the XRD lines match the cryptomelane phase, proving the high thermal stability of cryptomelane samples synthesized by this method.

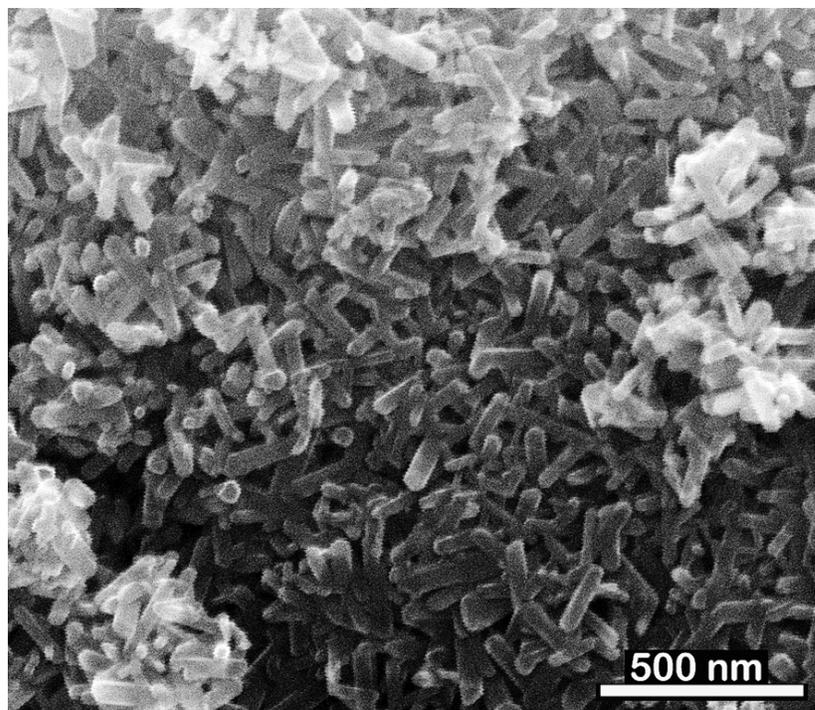


Fig. S2 SEM image of Crypt-C600

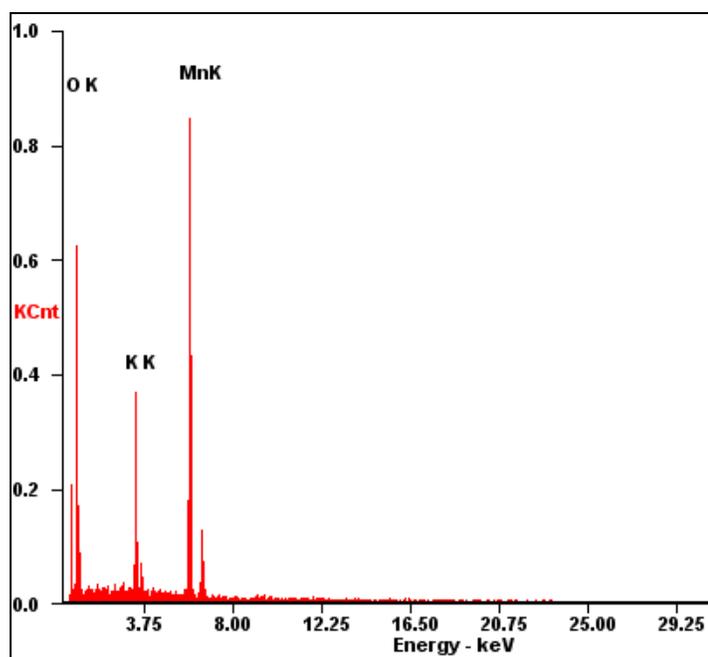
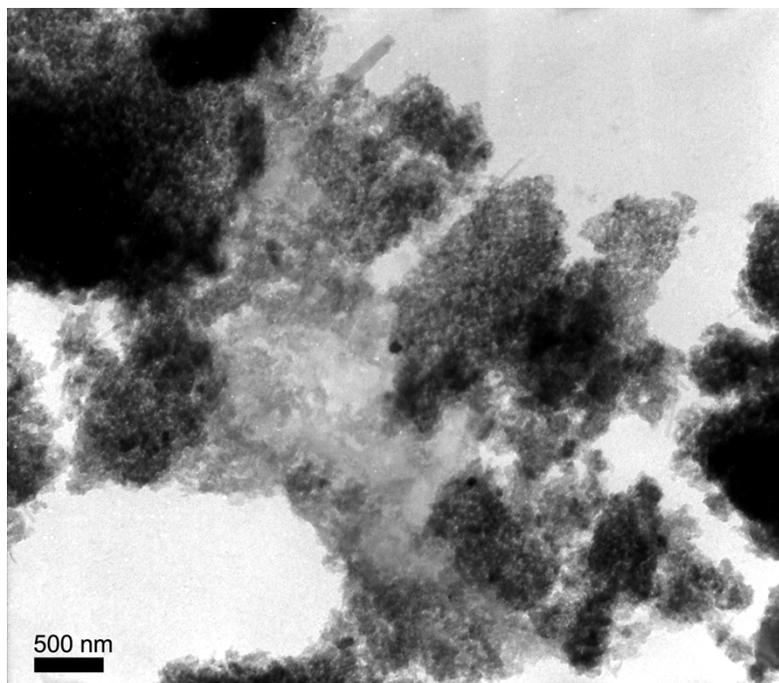
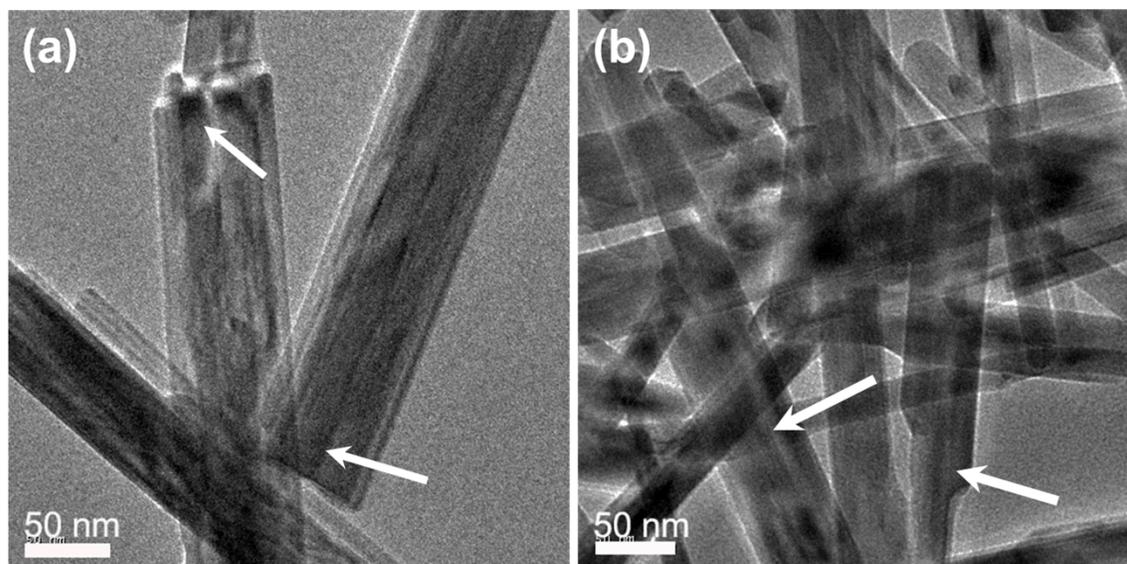


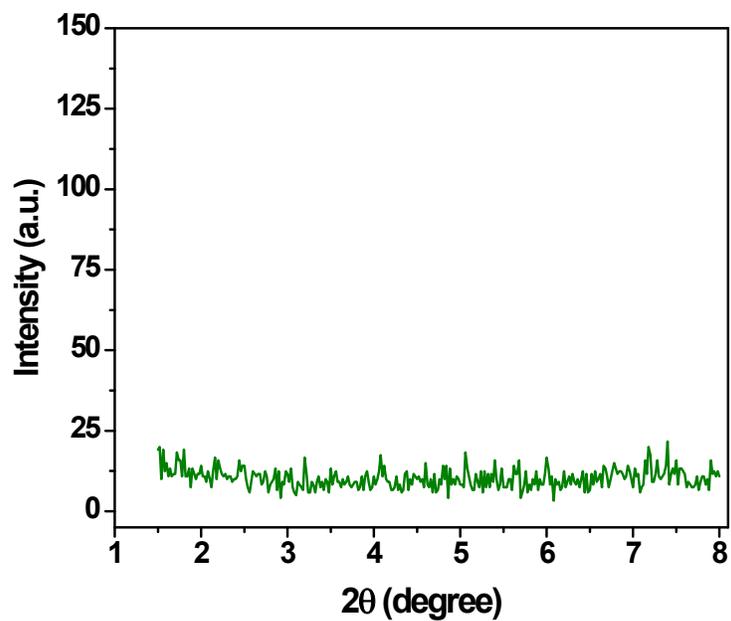
Fig. S3 EDS of Crypt-C600 recorded during SEM analysis



**Fig. S4** TEM image of Crypt-C400



**Fig. S5** TEM images of Crypt-A600



**Fig. S6** Low angle XRD powder pattern of Birn-C. Absence of peak in the low angle XRD pattern reveals the absence of ordered mesoporosity even though mesoporous nature is reflected in the BJH pore size distribution for Birn-C. This proves that the mesoporosity is emerging from the densely-packed nanowires network structure of Birn-C and Crypt-C as confirmed by SEM and TEM results.

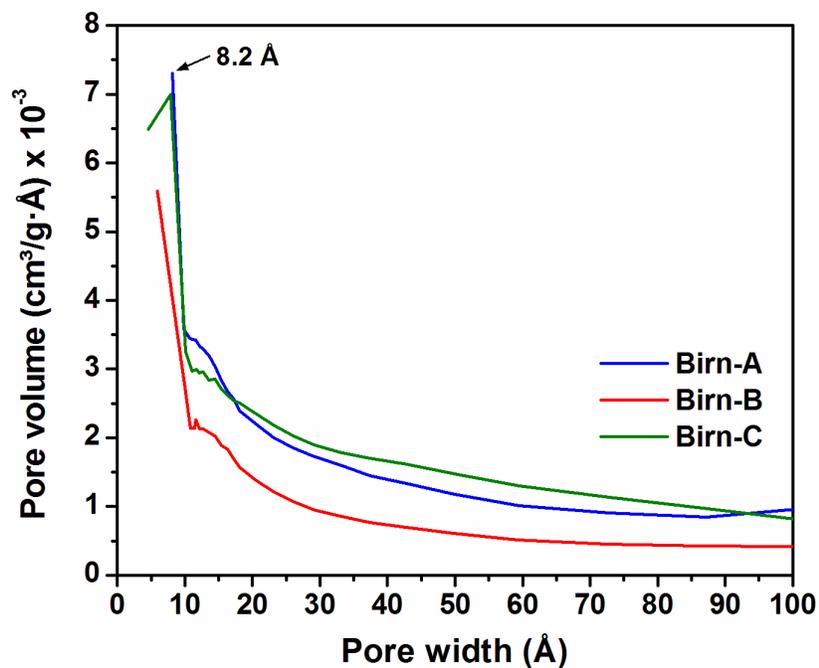


Fig. S7 Horvath-Kawazoe pore size distributions of birnessite samples

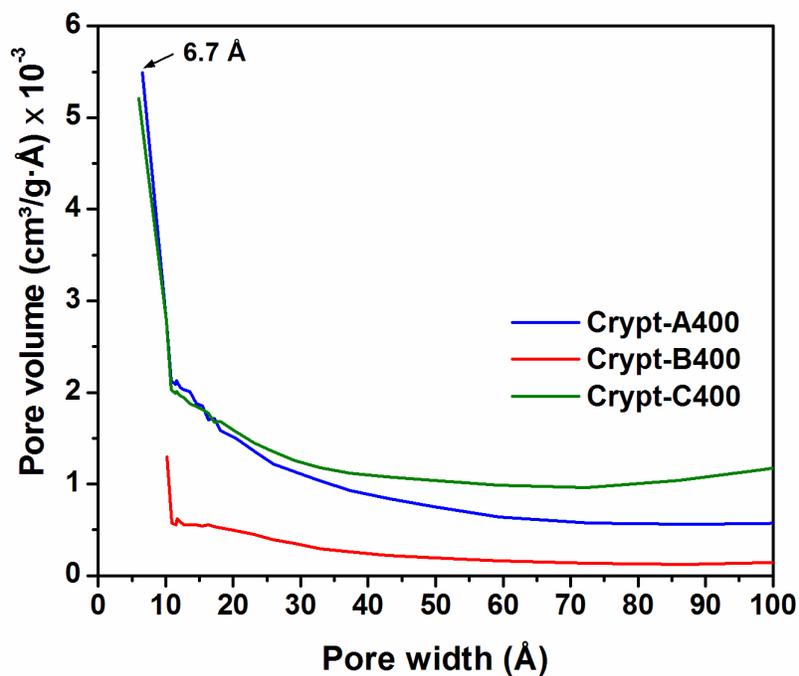


Fig. S8 Horvath-Kawazoe pore size distributions of cryptomelane samples