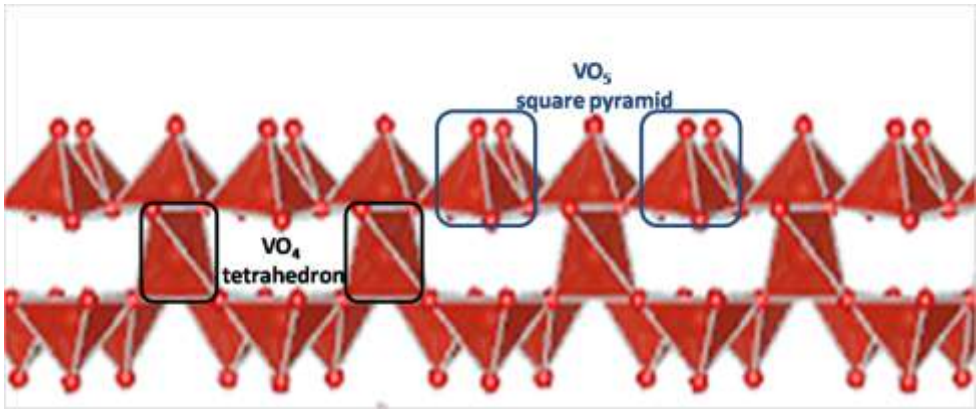

Figure S1. Schematic diagram of the structure of VO_x layer.

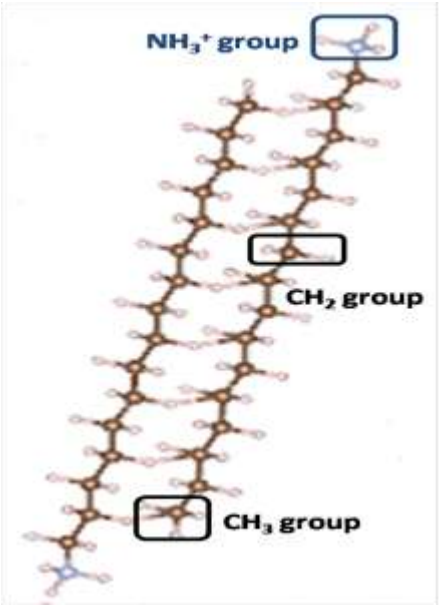

Figure S2. The protonated hexadecylamine molecules ($C_{16}H_{33}NH_3^+$) antiparallel to one another with their positively charged NH_3^+ groups pointing outward.

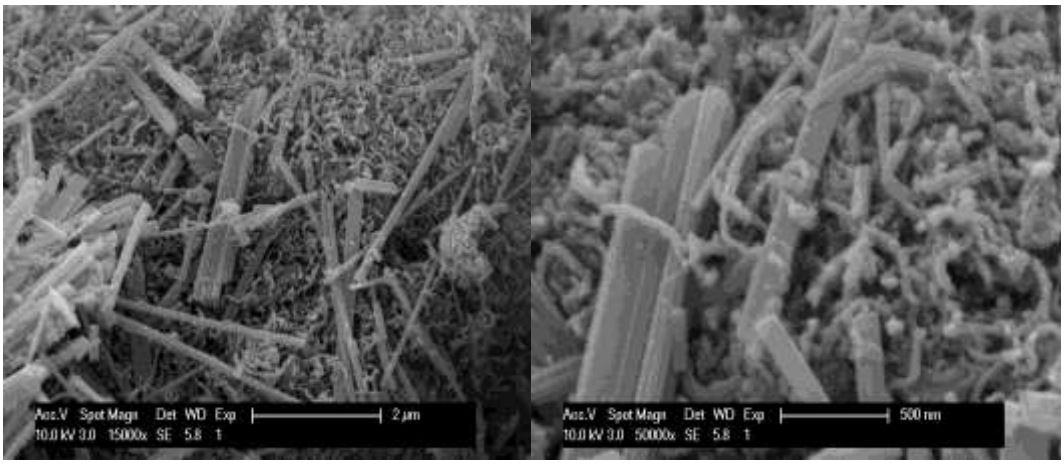

Figure S3. Vanadium oxide rods/MWCNTs mixture synthesized under the same hydrothermal condition without the addition of hexadecylamine as inter-mediator.

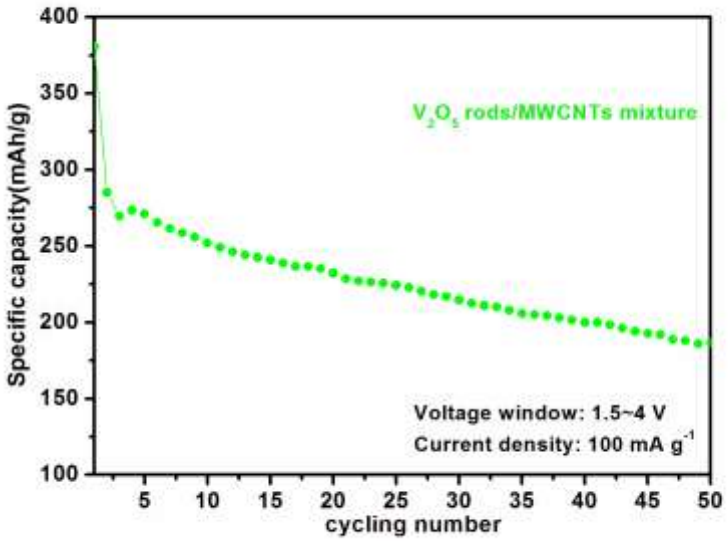

Figure S4. Cycling performance of vanadium oxide rods/MWCNTs mixture by post sintering at 400 ^{o}C in air under the current density of 100 mA g^{-1} between 1.5-4 V.

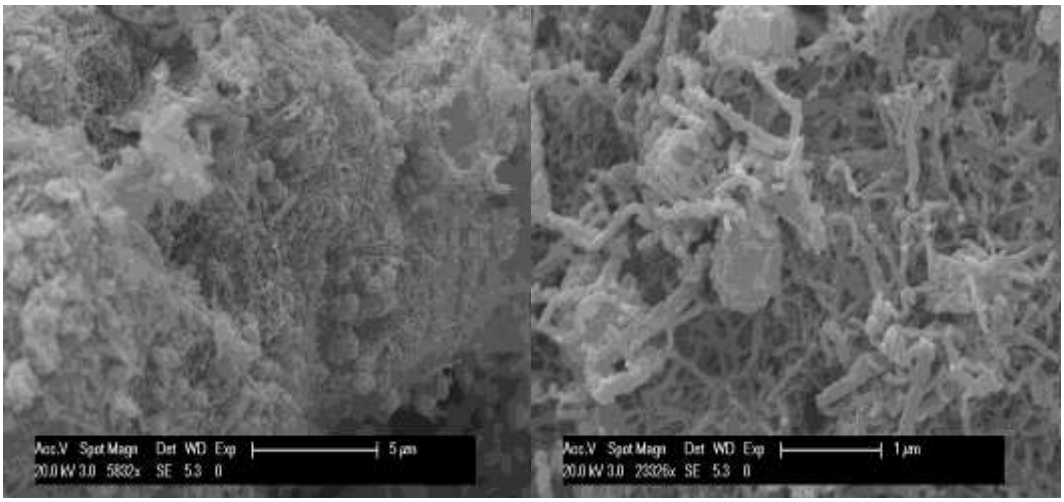

Figure 5S. MWCNTs-V_2O_5 composite prepared with the 1/1 mass ratio of MWCNTs to V_2O_5 through the same procedure using hexadecylamine as inter-mediator.