Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Information

V_2O_5 nanorods decorated Graphene /Polypyrrole Hybrid Electrode: A Potential Candidate for Supercapacitor

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1. Cyclic Voltammetry Study in organic electrolyte (1M $TEABF_4$/Acetonitrile):

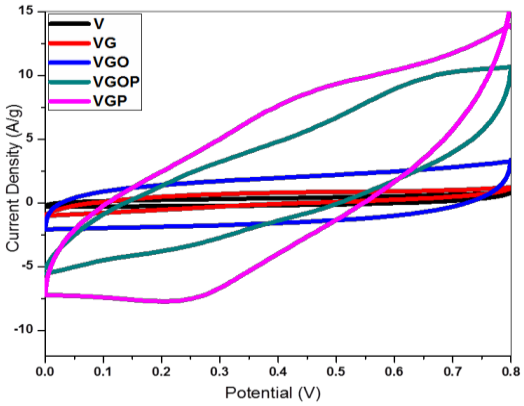

Figure S1: Cyclic voltammograms of the nanocomposites in 1(M) Acetonitrile at a scan rate 10mV/sec in a potential window (0-0.8V)

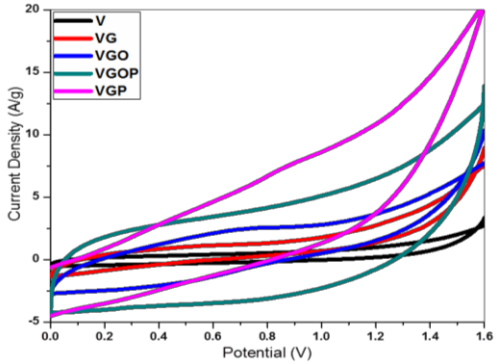

Figure S2: Cyclic voltammograms of the nanocomposites in 1(M) Acetonitrile at a scan rate 10mV/sec in a potential window (0-1.6V)

2. Galvanostatic Charging-Discharging Analysis in organic electrolyte (1M $TEABF_4$ /Acetonitrile):

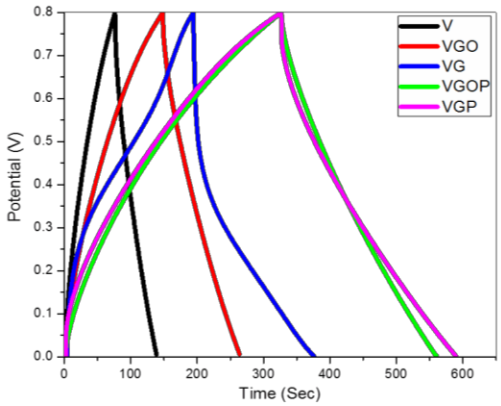

Figure S3: GCD plot of the nanocomposites in 1(M) Acetonitrile at 1A/g in a potential window (0-0.8)

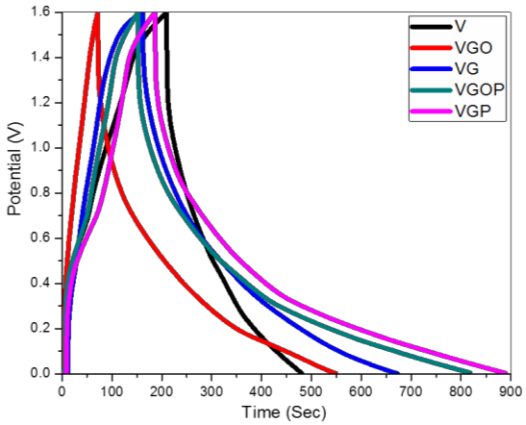

Figure S4: GCD plot of the nanocomposites 1(M) Acetonitrile at 1A/g in a potential window (0-1.6)

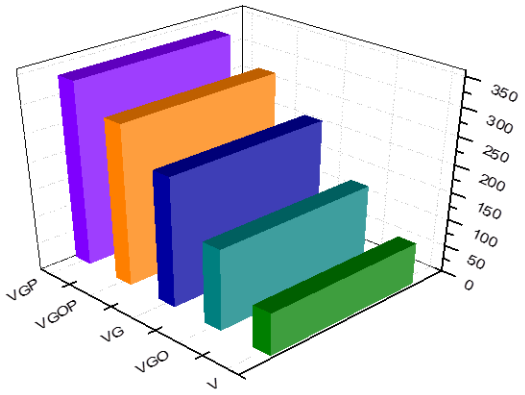

Figure S5: Bar plot of the specific capacitance (F/g) in 1(M) Acetonitrile at 1A/g in a potential window (0-0.8)

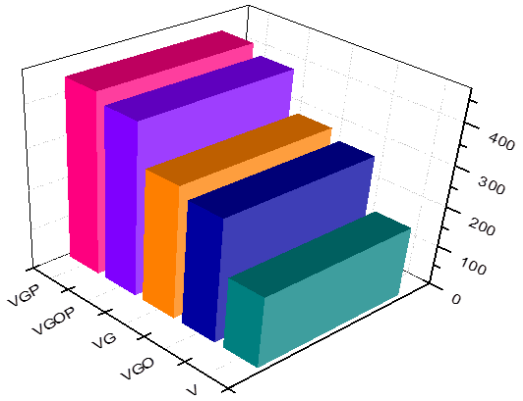

Figure S6: Bar plot of the specific capacitance (F/g) in 1(M) Acetonitrile at 1A/g in a potential window (0-1.6)

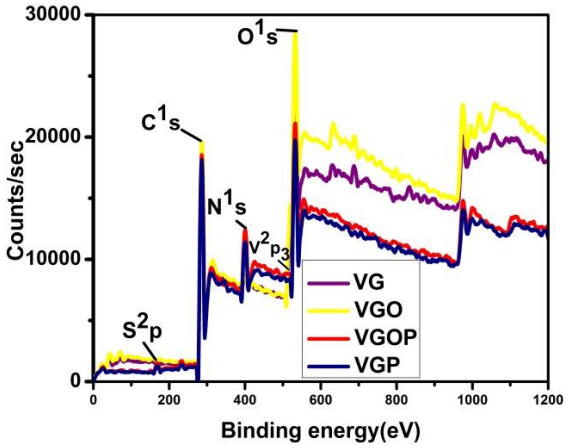

Figure S7: Wide Survey showing the various components in the various nanocomposites

3. Self-assembled device of as prepared electrode material for supercapacitor application

Figure S8: Self-assembled device demonstrating the practical application in supercapacitor

Table 1

Nanocomposite	Specific Capacitance(F/g)	Reference
V_2O_5 nanorods decorated Graphene /Polypyrrole Hybrid Electrode	787	Present work
Rod like V_2O_5 nanocrystals on rGO	537	Li et al., ACS Appl. Mater.Interfaces,2013,5(21),pp 11462-11470
Electrochemical codeposition of vanadium oxide and PPy	412	Bai et al., ACS Appl. Mater.Interfaces,2014,6(15),pp 12656-12664
Mesoporous hybrids of V_2O_5 nanoparticles anchored on rGO	466	Pandey et al., ACS Appl. Mater.Interfaces,2016,8(14),pp 9200-9210
Graphene decorated V_2O_5 nanobelts	288	Lee et al.,Sci. Rep.,2015,5:8151