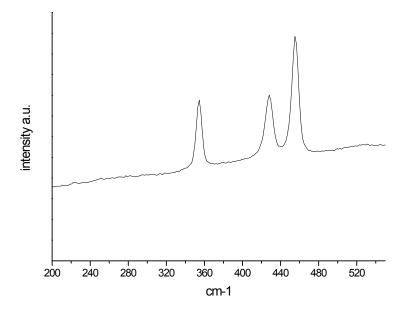
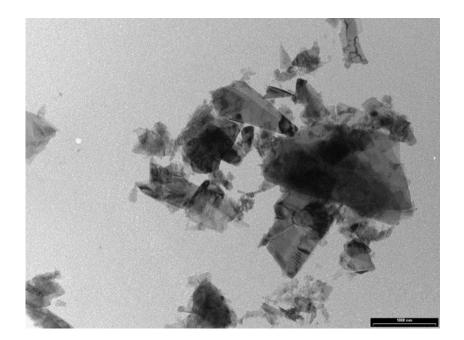
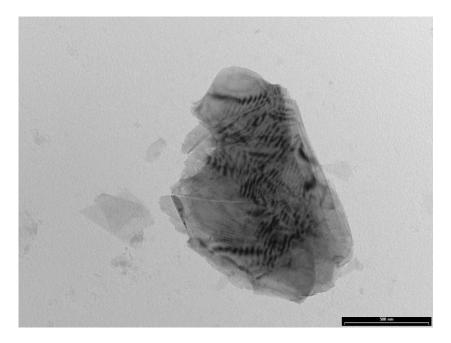
Electronic Supplementary Material (ESI) for RSC Advances. This journal is © The Royal Society of Chemistry 2016

## **Electronic Supporting Information**

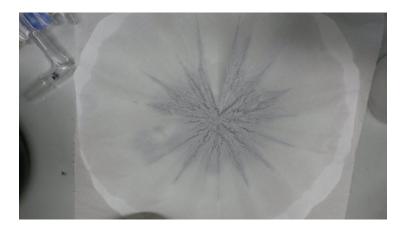


SF1: Raman spectrum of 2D BP dried

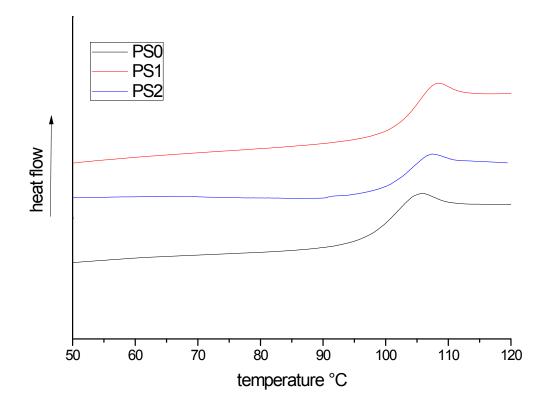




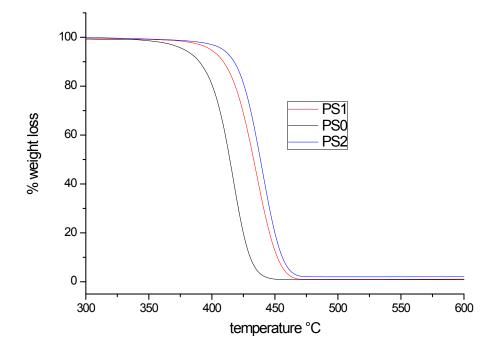
SF2: Bright-field TEM images of dried 2D BP



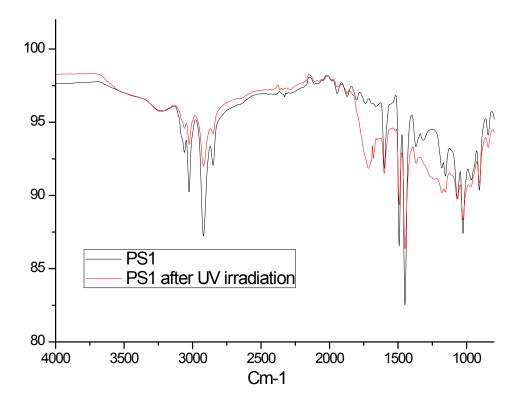
SF3: Powdery composite (PS1)'s picture as obtained by solutions blending and co-precipitation approach

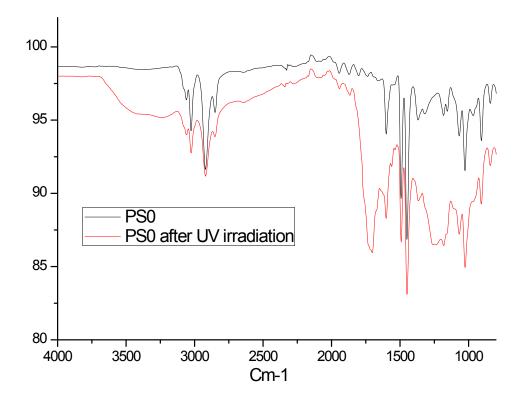


SF4: DSC curves of blank experiment (PSO) and composites with 2D BP nanolayers (samples PS1 and PS2)



SF5: TGA curves of blank experiment (PS0) and composites with 2D BP nanolayers (samples PS1 and PS2)





SF6: ATR Spectra of samples PSO and PS1 before and after UV irradiation