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Abstract	:	Polyaniline (PANi) reinforced with graphene oxide (GO) composites were synthesized via in-situ polymerization. The GO was synthesized from natural graphite flakes via the modified Hummer's method. The PANi/GO composites were characterized by Raman spectroscopy, X-ray diffraction, Fourier-transform infrared spectroscopy, scanning electron microscopy, and thermogravimetric analysis. The composites were used as supercapacitor electrodes and the performances were measured by the specific gravimetric capacitance (Csp) from cyclic voltammetry and charge/discharge characteristics. The maximum value of Csp was recorded as 36 F/g at a current density of 1 A/g for a loading of 50 wt.% of GO. However, the maximum energy density and power density were recorded as of 2.28 Wh kg⁻¹ and 259.06 W kg⁻¹, respectively, for the loading of 10 wt.% of GO. Additionally, the PANi/GO exhibited the highest capacitance retention of about 76.96% after 5000 cycles at a current density of 1 A/g. The electrochemical performance of the PANi/GO composites was suitable to be used for energy storage devices application.