

Past and Present Research Systems of Green Chemistry

September 14-16, 2015 Orlando, USA

***Pulicaria glutinosa* plant extract: A green and eco-friendly reducing agent for the preparation of highly reduced graphene oxide**

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The environmentally friendly synthesis of nanomaterials using green chemistry has attracted tremendous attention in recent years due to its easy handling, low cost, and biocompatibility. Here we demonstrate a facile and efficient route for the synthesis of highly reduced graphene oxide (PE-HRG) by the green reduction of graphene oxide (GRO) using the *Pulicaria glutinosa* plant extract (PE). The phytochemicals present in the *P. glutinosa* extract are not only responsible for the reduction of GRO, but also for the functionalization of the surface of the PE-HRG nanosheets and stabilize them in various solvents, thereby limiting the use of any other external and harmful chemical reductants and surfactants. The effect of PE on the dispersibility of PE-HRG in various solvents was investigated by preparing PE-HRG with different amounts of PE, and the dispersibility of PE-HRG was compared with that of chemically reduced graphene oxide (CRG). The reduction of GRO was confirmed by ultraviolet-visible (UV-vis), Fourier-transform infrared (FT-IR), Raman and X-ray photoelectron (XPS) spectroscopies, thermogravimetric analysis (TGA), X-ray powder diffraction (XRD) and transmission electron microscopy (TEM).

Biography

Abdulrahman Al-Warthan obtained his PhD from the School of Chemistry at University of Hull, UK in 1988. He served as a Chairman for Chemistry department in King Saud University during 2004-2006 and as a Chairman for Saudi Chemical Society during 1997-2001. He is a member of the college of Forensic Sciences Council at Naif Arab University for Security Sciences. He is the Editor-in-Chief for the *Arabian Journal of Chemistry*.

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