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# Flexible LPG sensor by chemo-bio synthesized nanostructured MgO

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The present work describe the synthesis of MgO nanoparticles in two way i.e., green synthesis using aloe vera plant extract and chemical method by glycine-based solution combustion route. Organic molecules present inaloe vera plant extracts can be used to reduce metal ions to nanoparticles in a one-stepgreen synthesis technique.Effect of different synthesis methods (green and chemical) nano materials was optimized almost equal sensitivity for LPG.Characterizations performed were Transmission electron microscope (TEM) was used to determine the particle size of the prepared sample, X-Ray Diffraction (XRD) for crystalline size and structure, the product nanoparticles analyzed by Fourier Transform-Infrared (FT-IR) spectroscopy, the morphology confirmed by field emission scanning electron microscopy (FE-SEM) and UV-Visible measurement for optical studies. The dynamic gas sensing characteristics were measured for LPG at different ppm levels with altered temperature at before bending and after bending, the synthesized both materials were coated on preprinted electrodeflexible devices using drop drying method and bio method material showed good sensitivity compared to chemical.

***Keywords:*** MgO, LPG, green synthesis, chemical synthesis, flexible gas sensor