

<b>TITLE</b>	SYNTHESIS AND APPLICATION OF POLY (METHYL METHACRYLATE) SURFACE-FUNCTIONALIZED WITH SILVER METAL-DECORATED POLYETHYLENEIMINE
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<b>ABSTRACT</b>	<p>Silver-decorated polyethyleneimine surface-functionalized poly (methyl methacrylate) (PMMA/PEI-Ag) nanocomposite particles were successfully synthesized via in situ emulsifier-free emulsion polymerization. Various reaction parameters, including reaction time between PEI and AgNO<sub>3</sub>, AgNO<sub>3</sub> content, and PEI content, were studied. The morphology of the nanocomposites was determined by TEM, showing the spherical Ag-NPs embedded in PEI shell of the polymer particles. Optical properties of the nanoparticles, both surface plasmon resonance and luminescence, were measured using UV-VIS spectroscopy and spectrofluorometry, respectively. Thermal property of the nanocomposites was determined by TGA. All properties of the nanocomposites were influenced by the extent of Ag-NPs formed in the nanocomposites along with the size and size distribution. In addition, the obtained PMMA/PEI-Ag nanocomposites were investigated for various applications. The nanocomposites displayed germicidal ability over multiple strains of bacteria and fungi. They also promoted the strong enhancement in Raman signals for SERS, as well as succeeded in the LSPR-based optical sensor for hydrogen peroxide.</p>