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Sm_2O_3 NANOPARTICLES GREEN SYNTHESIS VIA CALLISTEMON VIMINALIS' EXTRACT

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Abstract
In this contribution, it is demonstrated for the first time in the literature the possibility of synthesizing Sm_2O_3 nano-scaled particles as small as $\langle\phi_{particles}\rangle \sim 21.9 \pm 5$ nm using an entirely new green process. This latter is based on the usage of natural extract of the *Callistemon viminalis* as a strong chelating agent at room temperature. The selected area electron diffraction and the high resolution transmission electron microscopy confirmed the polycristallinity of the Sm_2O_3 nano-particles upon annealing at 500 °C. The complementary investigations by X-rays diffraction, infrared, Raman and X-Rays photoelectron spectroscopy substantiated the single phase and the elemental purity of the Sm_2O_3 nano-particles.

Keywords:
Samarium (III) Oxide, nanoparticles, green chemistry, Callistemon viminalis.