

ABSTRACT

This work deals with the green synthesis of Cr₂O₃ NPs with the help of dried leaves powder of a medicinal plant, *Moringa oleifera*. To confirm the synthesis of Cr₂O₃ NPs, different characterization techniques were employed. UV-Visible spectroscopy confirmed the absorption wavelength of NPs at 409nm and 580nm, and FTIR confirmed the presence of Cr-O & Cr=O bonds by showing their bending and stretching vibrations. The spherical-shaped morphology and size of NPs were analyzed by using SEM that was 17-34nm, purity checked by XRD analysis, and elemental percentage by EDX. Oxygen and chromium constitute 32% and 63%, respectively. Purity of nanoparticles was determined by XRD analysis. Optimized conditions were also determined by changing one condition while keeping the other conditions undisturbed. The Best conditions for maximum yield were found to be 40minutes, 70°C temperature, 0.1M salt solution, and 20ml plant extract. There are various applications of these NPs.