

Abstract

Using *Cucumis sativus* (Cucumber) extract as the stabilizing agent and $\text{Zn}(\text{CH}_3\text{CO}_2)_2 \cdot 2\text{H}_2\text{O}$ as the source of metal, ZnO NPs had been effectively made. Polyphenols, terpenoids and flavonoids found in the cucumber extract are the capping agents and they have the ability to convert metal ions into metal NPs. Several characterization methods such as UV-Vis, FTIR, PL, XRF, and SEM had been employed to analyze ZnO NPs. Its production was verified with the help of UV-Vis spectra that provided a peak at a certain wavelength. UV-Vis spectra had been used to obtain the band gap value. According to FTIR analysis, stretching vibration mode of Zn-O NPs correlates to the strongest bond at 604 cm^{-1} . A SEM picture revealed how ZnO NP nanoflakes formed. ZnO NPs were tested for their antioxidant and antibacterial properties. The produced ZnO NPs had exhibited good preservative efficacy for the cream formulation.