

Research Highlights

- Chemical co-precipitation approach has been successfully used to synthesize Bi_2O_3 and $\text{Zn/Bi}_2\text{O}_3$ nanoparticles.
- Bi_2O_3 exhibited a band gap energy of 1.78 eV, and $\text{Zn/Bi}_2\text{O}_3$ at 1 & 5% had band gaps of 1.83 eV & 1.99 eV.
- The Bi_2O_3 patterns verified that the cubic crystal structure was successfully formed.
- The FTIR results shown the occurrence of the peak at 811 cm^{-1} indicates the association with the Bi-O bond.