

## **Abstract**

Iron-doped Zinc oxide nanoparticles were synthesized through a chemical method. In the synthesis, iron chloride hexahydrate and zinc acetate dihydrate were used as precursors. Besides synthesis, the particles were blended with folic acid and chitosan suspension due to the affinity of tumor cells with folic acid and chitosan for stabilizing. Moreover, the particles were loaded with the doxorubicin drug to make the final composite. UV-Vis spectroscopy, FTIR, PL, XRD, and SEM were done for synthesis confirmation. Lastly, the drug-loaded composite was tested for anti-cancer activity.