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### Cytotoxic Effect of Zn(II)-Porphyrin-Based Muldulated Nanostructure on Breast Cancer Cells, Hek-1, And L929 Normalcells

In recent years, cancer disease led patients to become increasingly susceptible multiple drug resistance (MDR) through cancer therapies. Metalloporphyrin complexes are critical macromolecules that self-assembled and applied in various cancer therapy methods. In this study Zinc (II) porphyrin-based molecules, ZnTPP (zinc(II)tetrakis(4-phenyl)porphyrin), were synthesized and self-assembled during acid-base neutralization. Then, by a photochemical method the copper nanoparticles were decorated on ZnTPP nanoparticles to produce ZnTPP/Cu nanocomposite. Utilizing the polyacrylic acid as a modulator led to achieve the spherical morphology of nanocomposite. The products were identified by UV-Vis, PXRD, FT-IR, and FE-SEM analysis. The cytotoxic effect of synthesized samples was evaluated on breast cancer cells by (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. As well to investigate the favorable biocompatibility of synthesized nanocomposites for normal cells, their cytotoxicity was evaluated on HEK-1 an L929 normal cells. As a result, the synthesized nanocomposites demonstrated the sever cytotoxic effect on breast cancer cell. Moreover, the nanocomposites have more cytotoxic effect on L929 normal cells compared with HEK-1 normal cells.

**Keywords:** Zinc (II) porphyrin; Nanocomposite; Photochemical synthesis, Cytotoxicity; Breast cancer.

### Biography:

**Sajedah Tehraninejad**, I am PhD candidate in inorganic chemistry filed and work in the Prof. Rahmatollah Rahimi (rahimi\_rah@iust.ac.ir) laboratory in Iran university of science and technology. I am expert in the synthesis of porphyrins and nanomaterials. I research and work on antibacterial and anticancer nanocomposites.