

## FORMULATION AND EVALUATION OF ETOPOSIDE NANOPARTICULATE DRUG DELIVERY FOR SMALL CELL LUNG CANCER

ANJALI SUDHA & DR. NEELAM DHANKHAR

Starex University, Gurugram, India

### ABSTRACT

*Lung cancer is the most common cancer in terms of incidence and mortality. So many side effects in modern treatment it becomes necessary to find out effective and alternative therapy. The aim of this study is to determine the effect of etoposide nanoparticles on the lung cancer.*

*Materials and Method: Solid lipid nanoparticles of Etoposide prepared by the Modified solvent diffusion evaporation method. NDDS are carriers that assist in maintaining the therapeutic range of the medicine for an extended length of time. Zetasizer was used to determine the particle size and zeta potential. The encapsulation efficiency was also measured and calculated in the prepared nanoparticles. The drug release from the nanoparticles was also evaluated in-vitro and in-vivo.*

*Result: The entrapment efficiency, mean particle size and zeta potential of etoposide Solid Lipid Nanoparticle were 230.1nm, 71.29%, -46.2 respectively. In product formulations, the release of etoposide was found. When compared to the free drug Etoposide Nanoparticles had a stronger effect on lung cancer.*

*Conclusion: Solid Lipid Nanoparticles showed a suitable nanocarrier for etoposide suspension. The drug effect on the nanodrug formulations was also discovered to be greater than that of the free drug. The cytotoxic activity of etoposide nanoparticles against tumor was studied. In vitro release study showed prolonged and controlled released of etoposide which showed cytotoxic activity against tumor. The nanoparticles demonstrated good correlation in between in vitro and in vivo drug release.*

*Key words: Lung Cancer, Etoposide, Prolonged Release, Solid Lipid Nanoparticles, Treatments, Targeted Therapies.*

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