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Targeted drug delivery system of 5-Fluorouracil with recombinant epidermal growth factor for brain tumor

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5-Fluorouracil is an anticancer drug which has its effects on colon cancer, brain tumor, breast cancer, head & neck cancer. Aim of the present study was to formulate, optimize and characterize 5-Fluorouracil nanoemulsions for targeting brain tumor. Components of the formulation were optimized. Solubility study for the oil in surfactant & co-surfactant mix ratio was optimized. Characterization studies such as physical appearance, dispersibility study, density, viscosity, pH, surface tension, globule size & poly dispersity index, *in vitro* drug release, thermodynamic stability were performed for all the ten formulations. Zeta potential, optical microscopic analysis and transmission electron microscopic analysis were done for the selected formulations. Based on the results of characterization, NE3 was selected for conjugation with EGF. Two different methods such as physical mixing, and solvent evaporation technique were done for conjugation of epidermal growth factor with drug and physical mixing technique was optimized as the best method for conjugating the formulation. 5-Flurouracil nanoemulsions for targeting brain tumor and pseudo ternary phase diagram for the solubility studies and components of different phases were optimized and characterized through this study. The targeting efficiency of the drug was studied by molecular docking for conjugated drug formulation and the binding energy level of drug conjugated formulation with epidermal growth factor is high when compared with the plain drug.

Biography

N Kanagathara has her expertise in evaluation and passion in improving the research in tumor. Her open and contextual evaluation model based on responsive constructivists creates new pathways for improving the research. She also carries out research in other topics like study on cervical dysplasia and also the multi-drug resistant effect on *Mycobacterium tuberculosis* by PCR is the current research experience. Targeted drug delivery using rhEGF for brain tumor through nasal route is also one of her works. She has designed and formulated nanoemulsions by conjugating rhEGF with anticancer drug and targeted brain tumor. She also works on recombinant therapeutic protein process development-optimization in batch fermentation in research lab, continuous fermentation at industrial level for commercial, purification, characterization, scale up & production.

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