Formulation of Chitosan – Curcumin Nanoparticles for enhancement of Anticancer activity and Drug delivery

Dr. Keka Sarkar, Dept. of Microbiology, University of Kalyani, India

Traditional herbal medicines are progressively accepted as future therapeutics for several diseases even against cancer. Curcumin, a polyphenolic phytochemical may offer a safe, inexpensive remedy for cancer, still not efficiently bioavailable. To increase the bioavailability and hydrophobicity chitosan molecules play a key role as carrier in nanoscale regime. Chitosan-curcumin nanoparticles (CscurNP) were formulated and in-vitro release of curcumin were assessed. Enhanced uptake and four-fold cytotoxicity has been observed. Apoptotic effect of CscurNP were established by morphological changes in cancer cell as observed by fluorescence microscopy and FE-SEM. DNA damage, cell cycle blockage and elevated ROS levels further confirm the anticancer activity of the CscurNP following apoptotic pathways.