Polyaspartamides as a Drug Delivery Platform

* Sayan Basak

3rd Year

Bachelors of Technology

Department Of Polymer Sciences and Technology

University Of Calcutta

Abstract-

Cancerous diseases present a formidable health problem worldwide. While the chemotherapy of cancer, in conjunction with other treatment modalities, has reached a significant level of maturity, efficacious use of such agents is still restricted by numerous pharmacological deficiencies, such as poor water solubility, short serum circulation lifetimes, and low bioavailability resulting from lack of affinity to cancer tissue and inadequate mechanisms of cell entry. More critically still, most drugs suffer from toxic side effects and a risk of drug resistance. The class of Polyaspartamides anticancer drugs, although outstandingly potent, is particularly notorious in that respect. Among the countless methods developed in recent years in an effort to overcome these deficiencies, the technology of polymer drug conjugation stands out as a particularly advanced treatment modality. The strategy involves the bioreversible binding, conjugating, of a medicinal agent to a water-soluble macromolecular carrier. Following pharmacokinetic pathways distinctly different from those of the common, nonpolymeric drugs, the conjugate so obtained will act as a prodrug providing safe transport of the bioactive agent to and into the affected, that is, cancerous cell for its ultimate cell-killing activity. Polymer-drug conjugation involving polymer-based and other medicinal agents has unquestionably matured to a practical tool to the pharmaceutical scientist, and all indications point to an illustrious career for this nascent drug delivery approach in the fight against cancer.