**ABSTRACT**

Stavudine is an antiviral drug which is used in the management of AIDS. It has a shorter half life of about 1.3 h. Therefore, the present investigation is concerned with the development of the controlled release tablets, to improve the bioavailability of the drug and its half life. Stavudine showed maximum absorption at wavelength 266 nm. Drug-polymer compatibility studies by FT-IR showed no interaction between drug and selected polymers except Carbopol.

The controlled release compositions of the present invention consists of a tablet core component comprising a water soluble active ingredient in a water insoluble polymeric matrix using different polymers like HPMC 15 CPS, ethyl cellulose, sodium CMC, eudragit RS 100 alone and in combination at various concentrations. Coating is done in order to control the release in gastric pH. Coating solution consists of HPMC, eudragit and acetone as a solvent. *In vitro* dissolution studies were performed for all the formulations using USP apparatus type II. As the concentration of polymer increases, the drug release is decreased. Drug release is uniform when polymers are used in combination. Among all the developed formulations, F12 has shown 98 % drug release in 24 h and hence, it was selected as the best formulation when compared to other formulations.

It was concluded that the drug release followed zero order kinetics, as the correlation coefficient (R2 value) was higher for zero order release, so the drug release mechanism is controlled release. The best formulation F12 was found to be stable during stability studies for two months. Thus, F12 satisfied physicochemical parameters like hardness, friability and *in vitro* drug release profile requirements for controlled release drug delivery systems.

**Key words:** Sodium carboxymethylcellulose- sodium CMC, HPMC 15 cps, eudragit RS- 100.