LITERATURE:

Clard I. Vargas and Evone S. Ghaly 1987 studies the kinetic release of theophylline from the hydrophilic swellable matrix. The effect of amount of hydroxy propyl methyl cellulose (HPMC) and type of excipient on theophylline release from hydrophilic swellable matrices was evaluated. They found that as the percentage of polymer in the formulation increased from 10% to 30% or 40% the drug release decreased. At low levels of polymer, the drug release is controlled by the type of diluent’s used.

Lapidus and Lodi 1999 studied water-soluble drug chlorpheneramine maleate dispersed in hydrophilic methyl cellulose matrix. They found that drug release was controlled by drug diffusion rather than polymeric dissolution. Thus even when drug are placed in water-limiting matrix, which are subjected to erosion, the rate-limiting step is diffusion of drug out of the matrix.

Bawefa 1982 showed that the release of pseudo ephedrine hydrochloride from HPMC matrix followed a Higuchi pattern. The drug release from optimized mixture of HPMC and sodium carboxymethyl cellulose (CMC) used, as matrix material followed zero order until 100% drug was released in about in 12 hours. The optimum ratio of drug: HPMC: CMC was found to be 1:2:4. The deviation from zero order release was observed was HPMC and sodium CMC alone was used. This phenomenon was explained as a synergistic increase in gel viscosity due to high degree of cross-linking between anionic sodium CMC and non-ionic HPMC.

Guang yan 1965 studied the preparation and evaluation of a sustained release formulation of Nifedipine- HPMC tablets. HPMC matrix tablet of solid dispersion of nifedipine with polyethylene glycol (PEG) were prepared and absorption of nifedipine evaluated from SR tablets for 24 hr. The results indication that nifedipine - HPMC tablets could be ideal- 24 hr sustained release formulation.
T. Salsa, F. Veiga and M.E. Pina 1987 described the advantages and disadvantages of limited swelling hydrophilic matrices, their preparation mechanism of action and parameters affecting drug release from these systems.

Praveen Khullar 1976 evaluated controlled release Niacin tablets formulated using guar gum, it was observed that the dissolution profile declined with the increased in the guar gum content in the tablet.

Y. Madhusudan Rao 1967 studied the formulation and evaluation of Diclofenac sodium using hydrophilic matrices. Controlled release tablets (having near zero order release) of Diclofenac sodium were prepared using hydrophilic polymers like HPMC, Sodium CMC, HPMC and Carbapol 934. The optimum ratio of drug: HPMC: Na CMC was found to be 1:2:1 they observed that increasing the polymer content produces a more sustained released effect.

Ghosal and Jaykar 1986 prepared sustained release of Nifedipine from Eudragit matrix tablet. Eudragit powder can be used both individually and in combination for the formulation of the retarding Matrix. The principal component for delayed release matrix by compression was Eudragit S- 100 It was soluble only above PH. 7.0 So it acts as an insoluble matrix in the stomach and releases the drug slowly for an extended period of time.

Timmins 1999 (WP Patent 99/47128) described a biphasic controlled release delivery system for Metformin hydrochloride with inner solid particulate phase and outer solid continuous phase utilizing hydrophilic and hydrophobic polymers.

Khar and Agrawal 2006 have designed guar gum as a Hydrophilic Matrix for the preparation of Theophylline controlled release dosage form. Effect of the viscosity grade of the polymer and polymer content in the tablets on release pattern of theophylline
was examined in vitro. Release rate was retarded with increase in polymer content as well as viscosity grade of polymer.

Modified guar gum was used as a matrixing agent to develop sustained release tablet of Diltiazem hydrochloride was reported by Gohel in 1999. The lactic acid modified guar gum exhibited improved swelling characteristic at pH 1.2 and 7 as compared to that of the untreated guar gum.

Aithal and Udupa 2005 have designed controlled release fluoride matrix tablets using ethyl cellulose and hydroxy propyl methylcellulose as matrix material. Micromeritic studies of granules and tablets and dissolution studies are reported here.

Murali 2003 formulated Indomethacin - ethyl cellulose polymer matrix system of different ratios were prepared by using solvent evaporation technique. Selected matrices were directly compress into tablets. Release of drug from matrices and tablets followed first order Kinetics with diffusion type of release.

Gaud and Talele 1998 formulated sustained release dosage form of Flurbiprofen using a combined pectin and ethyl cellulose matrix. Two matrix component of 20% and 30% w/w of total tablet weight were prepared. In vitro release data showed that 30% w/w of total tablet weight matrix component gave extended release of Flurbiprofen.

Nandi 2008 formulated Ibuprofen SR tablets by using Methacrylic acid copolymer and evaluated. Among the Eudragit, different grade with different concentration were tried out and compared with some marketed product.

Shahriyar 1999 formulated sustained release preparation of Metoclopramide HCL using carnauba wax and stearic acid as matrix formers. Directly compressible tablets were prepared by melt dispersion method. Patent no. W00288181 by Shahriyar
described sustained release of the composition that includes granulation Metformin hydrochloride and hydrophobic polymer by extrusion.

**C. Duru 1999** studied natural polymer scleroglucon hydrophilic matrix and factors influencing drug release in hydrophilic matrices. Result showed that in porous hydrophilic polymer systems, two phenomena control the release of drug: the water uptake and polymer swelling. Directly compressed hydrophilic matrices prepared with Scleroglucon as gelling agent exhibited a correlation between the above phenomena and dissolution behaviors. The effect of polymer concentration, excipient solubility and compression force on drug release were studied.

**Huber 2007** employed hydrophilic gums as the matrix material and showed that drug diffusion from a gel barrier at the periphery of the tablet was rate limiting.

**Majeti N.V; Ravi Kumar and Neeraj Kumar 2006** discussed the polymeric controlled drug-delivery system, perspective issues and opportunities. Polymers, which swell and contract in response to external pH levels, are explored. They discussed recent advanced and future prospects in controlled drug-delivery technology using polymer.

**Chandra Mohan. S.B. and Shyamala Bhaskaran 2005** studied In Situ Gelling gellan formulations for oral sustained delivery of Famotidine.

**Wei Wu *, Yang Wang, Li Que 2003** studied Enhanced bioavailability of silymarin by self-microemulsifyingdrug delivery system.

**Prabagar Balakrishnan a, Beom-Jin Lee b, Dong Hoon Oh a, Jong Oh Kim 2009** Enhanced oral bioavailability of dexibuprofen by a novel solid Self-emulsifying drugdelivery system (SEDDS).
Yig Liu, Ping Zhang, Nianping Feng, Xin Zhang, ShanWu, Jihui Zhao studied 2009
Optimization and *in situ* intestinal absorption of self-microemulsifying drug delivery system of oridonin.