Review of Literature

Adel M. Aly et al, reported a cyclodextrin inclusion complex to enhance the dissolution rate and bioavailability of Glipizide. The α-CD was more effective than the β-CD in enhancing the dissolution rate of GZ, and the addition of NaCMC enhanced the dissolution rate of the GZ-β-CD complex more than PVP or PEG6000.18

Mona Semalty, A Semalty, G Kumar reported mucoadhesive buccal films of Glipizide by solvent casting technique using hydroxypropylmethylcellulose, sodium carboxymethylcellulose, carbopol-934P and Eudragit RL-100.19

Mark R. Burge et al, reported solid dispersions to increase the solubility of Glipizide in osmotically controlled oral drug delivery system with polyvinylpyrrolidone (PVP) in aqueous media. The Glipizide-PVP solid dispersion systems was prepared by physical mixing or spray drying method, and characterized by DSC, XRD, FT-IR and SEM. The obtained results indicated that Glipizide-PVP solid dispersion system has suitable solubility behaviour in Elementary osmotic pump tablets.21

Jayvadan K. Patel et al, formulated and systematically evaluated the in vitro and in vivo performance of mucoadhesive microspheres of Glipizide. In vivo testing with albino wistar rats demonstrated significant hypoglycaemic effect of Glipizide.22

Rachel H. Foster, Greg L. Plosker, reported the pharmacoeconomic implications of Gastrointestinal Therapeutic System (GITS) extended-release formulation of Glipizide. Results indicated that Glipizide GITS had pharmacoeconomic and quality of life advantages over diet alone in the short term, but more clinically relevant comparisons with other antidiabetic agents are needed.23

Hagalvadi Nanjappa Shivakumar et al, reported a 3² factorial design to produce Glipizide lipospheres by the emulsification phase separation technique using paraffin wax and stearic acid as retardants. Results indicate that the optimized liposphere formulation developed was found to produce sustained anti-diabetic activity following oral administration in rats.24

Herchuelz and W. J. malaisse reported the Insulinotropic potency of Glipizide in vitro.25

Shelesh Jain and Swarnlata Saraf developed Glipizide loade biodegradable nanoparticles by using a biodegradable polymer, poly(d,l-lactic-co-glycolic acid) PLGA as a sustained release carrier.26
Rajan K. Verma, Sanjay Garg, developed extended release formulations of Glipizide, with techniques of thermal and isothermal stress testing (IST) used to assess the compatibility of Glipizide with selected excipients.  

Srinivas Mutalik et al, reported Glipizide matrix transdermal systems using the combinations of ethyl cellulose/polyvinylpyrrolidone and Eudragit RL-100/Eudragit RS-100. Results indicated that the transdermal route exhibited negligible skin irritation and produced better improvement compared to oral administration.  

Srinivas Mutalik and Nayanabhirama Udupa, reported Membrane-moderated transdermal systems of Glipizide prepared using drug-containing carboxopol gel and ethyl cellulose, as well as Eudragit RS-100, Eudragit RL-100 and ethylene vinyl acetate rate-controlling membranes, and were subsequently evaluated in vitro and in vivo.  

Seema Thakral and A. K. Madan, reported Urea co-inclusion compounds of Glipizide for the improvement of dissolution profile. Formation of Glipizide co-inclusion compounds was confirmed by FTIR, DSC and XRD.  

Garcia and E. S. Ghaly, reported delivery of Glipizide from spheres and compacts containing the natural polymer Carrageenan and prepared by extruder marumerizer technique.  

N. Pakpayat a and F. Nielloud, developed a alky polyglycoside microemulsion system, which presents a good stability, protect ascorbic acid from degradation and promote an adequate penetration of AA into the skin for topical application.  

Jun-Li Fenga, Zheng-WuWanga, have investigated phase diagrams of some five component systems containing poloxyl 35{EL-35} non-ionic surfactant and vitamin E, Moreover, extensive studies on the relationship between the structure of the microemulsion and the reactivity of vitamin E have been performed.  

Mao-Bo Cheng, Jian-Cheng Wang, reported a new w/o microemulsion of EFE-d for oral delivery microemulsion consisting of Labrafac CC, Labrasol/Plurol Oleique CC, and evaluated in vitro and in vivo. Results indicated that microemulsion reperesents a safe and effective oral delivery system for hydrophilic bioactive macromolecules such as EFE-d.  

Adwoa O. Nornoo, David W. Osborne have reported two cremphor-free macroemulsion, lecithin:butanol:myvacet oil:water (LBMW) and capmul:myvacet oil:water (CMW) for paclitaxel
(PAC). The optimal microemulsions were characterized for droplet size, cytotoxic activity in a breast cancer cell line, MDA-M231, and in vitro haemolytic potential using Taxol® as a reference.35

Chong-Kook Kim, Yeon-Ju Cho, have reported a premicroemulsion concentrate for oral administration of biphenyl dimethyl dicarboxylate(BDD) and its physicochemical properties and the pharmacokinetic parameters were evaluated. The results demonstrated that the premicroemulsion concentrate of BDD considerably improves the bioavailability of a poorly water-soluble BDD after oral administration. 36

MarcoAntonio Moreno, reported lecithin based oil-water microemulsions as potential amphotericine B(AmB) delivery systems and evaluated their in vivo acute moiety.

Adwoa O. Nornoo, Haian Zheng, developed a cremophor-free oral microemulsions of paclitaxel (PAC) to enhance its permeability and oral absorption. Results showed increased permeability and oral absorption of PAC as compared to cremophor based microemulsion.38

Welwel Zhu, Aihua Yu, reported Penciclovir microemulsion for dermal delivery. Results showed that the permeating ability of penciclovir was significantly increased from the microemulsion formulation compared with commercial cream.39

Zhong-Gao Gao, reported a microemulsion to improve the solubility and to enhance the bioavailability of poorly water-soluble cyclosporine A in addition the effects of composition on the physicochemical characteristics of each microemulsion systems were investigated for the optimization of microemulsion system.40

Ye, sim Karasulu, reported a microemulsion on methotrexate (M-MTX) for oral use and investigated the suppressive effect of MTX-loaded microemulsion on MCF-7 human breast cancer cells. The results indicate that M-MTX may exert a low cytotoxic effect on normal cells and may be effective as an antitumor agent that induces apoptosis. 41

Ljiljana Djordjevic, Marija Primorac, Mirjana Stupar, reported diclofenac diethylamine (DDA) microemulsion to determine the influence of both formulation parameters and vehicle structure on in vitro release rate. Results suggest that the obtained flux values suggested that bicontinuous microstructure hampers the release of the amphiphilic drug.42

Pradip Kumar Ghosh, Rita J. Majithiya, reported an oral microemulsion formulation for enhancing the bioavailability of acyclovir. The in vitro intraduodenal diffusion and in vivo study revealed an increase of bioavailability (12.78 times) as compared with the commercially available tablets.43