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**IN-SITU THERMORESPONSIVE MUCOADHESIVE GEL FOR SUBLINGUAL
DELIVERY OF GLUCAGON LIKE PEPTIDE-1 RECEPTOR AGONIST**

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Objectives: The aim of this research was to evaluate the potential of chitosan based liposomal thermoresponsive mucoadhesive gel system for sublingual delivery of Glucagon Like peptide-1 receptor Agonist (GLP-1RA).

Methods: the Liposomes were prepared from soya phosphatidylcholine (SPC) and cholesterol (1:1 to 3:1) by using Ethanol injection method. The size and Entrapment Efficiency (EE) of liposomes was 150nm to 200nm and 70% to 80% respectively. Increase in cholesterol conc. resulted in enhanced mechanical strength, stability and size of liposomes was also increased. Higher amount of drug in formulation resulted in increased size and reduced EE. Then these liposomes were incorporated in thermoresponsive Gel made-up of Chitosan (CS-2%) and β -glycerophosphate (β -GP-7% to 11%). These formulations of different conc. of β -GP were evaluated for pH, gelling time, gelling temperature and viscosity by using Rheometer.

Results: The gelling time of all the formulations was less than 2 min. and gelling temperature was between 32°C to 37°C. The viscosity of the different formulations depends upon temperature and increased with increase in temperature (up to 8000mPa.S). The increase in β -GP conc.

Conclusions: Resulted in increase in pH and Gelling temperature of gel because of chitosan has lower critical solution temperature (LCST) 28°C to 30°C, β -GP causes hydrophobic interaction with chitosan and hydrogen bonding with water molecules results in physical cross linking