FORMULATION AND EVALUATION OF β-SITOSTEROL LOADED NIOSOMES FOR ENHANCED ANTIDIABETIC ACTIVITY: A POTENTIAL ALTERNATIVE IN TYPE 2 DIABETES MANAGEMENT

Priya Tiwari[a]* and Rajat Srivastava[b]

(Received 02 August 2023) (Accepted 04 April 2024)

ABSTRACT

Niosomes, vesicles formed by non-ionic surfactants, offer advantages in drug delivery by enhancing solubilization and encapsulating both lipophilic and hydrophilic drugs. This study focuses on β-sitosterol-loaded niosomes designed to protect its anti-diabetic properties. Formulated with Span™ 60, Span™ 80 and cholesterol, the niosomes showed high entrapment efficiency (90%) and favorable release kinetics. Stability studies confirmed their robustness in various conditions. *In vivo* experiments demonstrated significant improvements in body weight and blood glucose levels in diabetic rats. The optimized formulation (NF8) exhibited controlled release and substantial antidiabetic activity, suggesting its potential as an effective treatment for type 2 diabetes mellitus.