

पेटेंट कार्यालय
शासकीय जर्नल

**OFFICIAL JOURNAL
OF
THE PATENT OFFICE**

निर्गमन सं. 17/2026
ISSUE NO. 17/2026

शुक्रवार
FRIDAY

दिनांक: 24/04/2026
DATE: 24/04/2026

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202611021073 A

(19) INDIA

(22) Date of filing of Application :23/02/2026

(43) Publication Date : 24/04/2026

(54) Title of the invention : EFFECT OF CHOLESTEROL CONCENTRATION ON SIMVASTATIN ENCAPSULATED NIOSOME CONTAINING SPAN60 AND SPAN80 AS SURFACTANT

(51) International classification	:A61K9/1271, A61K47/28, A61K31/366, A61P3/06, A61K47/32, A61K47/34	(71)Name of Applicant : 1)Diksha Address of Applicant :Pharmacy Academy, Faculty of Pharmacy, IFTM University, Moradabad, U.P. – 244102 Uttar Pradesh India 2)Dr. Prevesh Kumar 3)Prof. Navneet Verma 4)Swati Gautam 5)Mohd. Zafar 6)Avinash
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(86) International Application No	:	4)Swati Gautam
Filing Date	:01/01/1900	5)Mohd. Zafar
(87) International Publication No	: NA	6)Avinash
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

The present invention relates to a cholesterol-optimized simvastatin niosomal drug delivery system formulated using non-ionic surfactants Span 60 and Span 80 at surfactant-to-cholesterol molar ratios of 1:1, 2:1, 3:1, and 1:3, prepared by the handshaking thin-film hydration technique. The study establishes that the surfactant-to-cholesterol ratio critically influences vesicle characteristics and drug release behavior. The formulation containing Span 60 and cholesterol at a 2:1 molar ratio demonstrated the smallest vesicle size of 225.40 nanometres, lowest polydispersity index of 0.153, and highest entrapment efficiency of 85.72 percent. The 24-hour in-vitro cumulative drug release reached 90.74 percent in pH 6.8 phosphate buffer, following Fickian diffusion kinetics. Excess cholesterol increased vesicle size, decreased entrapment efficiency, and slowed drug release due to greater membrane rigidity. The invention provides an optimized strategy to enhance simvastatin oral bioavailability via niosomal encapsulation.

No. of Pages : 16 No. of Claims : 10