पेटेंट कार्यालय
शासकीय जर्नल

OFFICIAL JOURNAL
OF
THE PATENT OFFICE

निर्गमन सं. 11/2026	शुक्रवार	दिनांक: 13/03/2026
ISSUE NO. 11/2026	FRIDAY	DATE: 13/03/2026

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/01/2026
(21) Application No.202611008965 A
(43) Publication Date : 13/03/2026

(54) Title of the invention : DEVELOPMENT AND EVALUATION NASAL MUCOADHESIVE GEL USING NATURAL POLYMER

(51) International classification	:A61K9/06, A61K47/36, A61P11/02, A61K47/12, A61K31/722, A6131/131, A61K31/133, A61K31/085
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Dr. Mukesh Kumar Singh
Address of Applicant :Associate Professor, School of Pharmaceutical Sciences, Faculty of Pharmacy, IFTM University, Moradabad, Uttar Pradesh, India – 244102 Uttar Pradesh India
2)Mr. Ashwanee Kumar Sahu
3)Mr. Yugal Kishor Rajput
4)Mr. Rajendra Kumar Sahu
5)Dr. Omprakash Sahu
6)Mr. Vikas Kumar Sahu
7)Ms. Dolly Yadu
8)Ms. Pratibha Jaiswal
9)Mr. Lokesh Kumar
10)Mr. Amit Kumar
(72)**Name of Inventor :**
1)Dr. Mukesh Kumar Singh
2)Mr. Ashwanee Kumar Sahu
3)Mr. Yugal Kishor Rajput
4)Mr. Rajendra Kumar Sahu
5)Dr. Omprakash Sahu
6)Mr. Vikas Kumar Sahu
7)Ms. Dolly Yadu
8)Ms. Pratibha Jaiswal
9)Mr. Lokesh Kumar
10)Mr. Amit Kumar

(57) Abstract :
The present invention relates to the development and evaluation of a nasal mucoadhesive gel formulation using natural polymers for enhanced intranasal drug delivery. The formulation comprises chitosan (0.5–2.0% w/v) and sodium alginate (0.5–1.5% w/v) as mucoadhesive agents, benzalkonium chloride as preservative, and purified water as vehicle. It exhibits a pH of 5.5–6.5, viscosity of 5,000–15,000 centipoise, and mucoadhesive strength of 0.25–0.50 Newtons, enabling nasal residence time exceeding four hours. The synergistic polymer combination enhances mucoadhesion through electrostatic interactions and hydrogen bonding. In vitro studies show sustained drug release over eight hours following Higuchi kinetics, while ex vivo studies demonstrate improved nasal permeation with a ratio of 1.51. Ciliotoxicity studies confirm formulation safety, offering a cost-effective and biocompatible nasal drug delivery system.

No. of Pages : 12 No. of Claims : 10