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FORMULATION APPROACH FOR BROMOCRIPTINE DELIVERY IN NANO FORM VIA ORO-TRANS LABIO MUCOSAL ROUTE AND ITS PERFORMANCE EVALUATION

Vishakha Jaiswal^{*} and NVS Madhav

Novel Drug Delivery Research Lab, Faculty of Pharmacy, DIT University, Bhagwantpur, Dehradun - 248001, Uttarakhand, India.

ABSTRACT: The purpose of the current study was to formulate nanosized bromocriptine loaded mucoadhesive bio-flexy films using biopolymer from *Zea mays* for improved bioavailability and therapeutic efficacy *via* oro-trans labio mucosal route. Bromocriptine was nanosized by a novel method using 1,2,3-propanetriol as nanosizant. The biopolymer was isolated from *Zea mays* by treating the aqueous extract with an optimized quantity of non-aqueous solvent. Ten nanosized drug loaded films in different ratios (1:1, 1:2,1:3, 1:4 and 1:5) of biopolymer from *Zea mays* and Guar gum were prepared by "Solvent Casting Technique." Biopolymer from *Zea mays* and Guar gum was used as film former, 1,2,3-Propanetriol and D-glucose as flexicizer. All the films were evaluated using thickness, surface pH, folding endurance, weight and content uniformity, mucoadhesive, *invitro* drug release profile, *etc.* The isolated biopolymer was off-white in color, biodegradable and biocompatible. All films were thin, smooth, transparent to translucent in appearance and flexible in nature. All formulations adhered to the mucosal surface for more than 24 h. The amount of film former influenced the properties of different formulations. The formulation is having drug and biopolymer at a ratio of 1:2 (FZM2) showed the best performance with 180 times mucoadhesion time, 98.28% drug content uniformity, and release drug throughout 36 h. Due to the benefits of single daily dosing and reduced dose-related side effects, the novel formulation approach for bromocriptine delivery may act as a landmark for treatment and management of Parkinsonism, pituitary tumor, acromegaly, and type-II Diabetes mellitus.

Keywords: Biopolymer, Flexy films, Nanosizing, Zea mays

Correspondence to Author: Mrs. Vishakha Jaiswal

Research Scholar, Novel Drug Delivery Research Lab, Faculty of Pharmacy, DIT University, Mussorie Diversion Road, Bhagwantpur, Dehradun - 248001, Uttarakhand India.

E-mail: vishakhajaiswal216@gmail.com

INTRODUCTION: Parkinson's disease is the most prevailing degenerative neurological disorder which depletes striatal dopamine due to degeneration of dopaminergic neurons in substantial Niagra. Parkinson may remain for decades and reduces the quality of life in aged patients.



The symptoms of Parkinson's disease are akinesia, bradykinesia, resting tremor, muscular rigidity, and disturbance in posture and walking 1 .

Bromocriptine is widely used in Parkinson's disease. Bromocriptine is an ergot derivative and has been marketed for more than 20 years. It shows potent dopamine agonistic activity which stimulates postsynaptic dopamine receptors. Bromocriptine stimulates hypothalamic dopaminergic receptors resulting in an increase in prolactin inhibitor factor, decreasing secretion of prolactin from the anterior pituitary thus used in the treatment of hyperprolactinemia. Bromocriptine also decreases growth hormone production and