

Spray Dried Formulation of Mesalamine Embedded with Probiotic Biomass for the Treatment of Ulcerative Colitis

Dr Neeraj Mishra

Amity Institute of Pharmacy, Amity University of Madhya Pradesh, Maharajpura (Opposite Airport), Gwalior-474005 (M.P.) Email: nmishra1@gwa.amity.edu; Mob: 8054746714

Abstract

Present study is using the targeted approach and anti-inflammatory action of the probiotic biomass to lessen the side effects of therapeutic agents of ulcerative colitis**.** The aim of the present study is to prepare mesalamine loaded eudragit S-100 with probiotic microparticles by spray drying method. The *in-vitro* release of the optimized formulation was 90.55±2.42 in 24 hr, which display controlled drug release of mesalamine at a colonic region. Mesalamine loaded eudragit S-100 with probiotic microparticles (F12) presented average particle size of 4.91µm. The statistical analysis was done by one way ANOVA and then comparison test of Bonferroni was done and P *values* <0.05 were considered as significant. The effects of spary dried microparticles over inflamed Caco-2 cell were also evaluated by determining the concentration of IL-8. From *in- vivo* study it was seen that pre-treatment of mesalamine with probiotic prevents DNBS (Dinitrobenzenesulfonic acid) induced colitis in rats and represents protective action against ulcerative colitis because of its antioxidant and anti-inflammatory actions. The results clearly demonstrate the combination of targeted approach along with the anti-inflammatory potential of the probiotic which might help to decrease the problems which are seen with the traditional cure and management of ulcerative colitis.

Keywords: Ulcerative Colitis, Probiotic (*L. acidophilus*), Spray drying, Mesalamine, DNBS

Dr. Neeraj Mishra is working as Professor in Amity Institute of Pharmacy, Gwalior since July 2019. He is having more than Sixteen years teaching/industry/ research experience at undergraduate and post graduate level. He was recipient of ICMR- SRF (New Delhi, India) (Grant: 45/02/2007-BMS/ PHA Dated 06\07\2007\H.S.Gour) during his Ph.D. tenure under supervision of Prof. S. P. Vyas. He is working as brand ambassador of Bentham Science,USA 2018-19. He has supervised more than 30 M Pharm students. He is having more than 80 publications of International and National repute in recent concept of novel drug delivery system, particularly in *vaccine delivery and drug targeting*. He is also approved production chemist form LSSSDC under Skill India Scheme for the period of 2019-2021. He is recipient of "Distinguished Professor Award" 2019 from DST-NSTMIS,SPAICS, Indore, M.P in September 2019.