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BOOK OF ABSTRACTS

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DESIGN AND CHARACTERIZATION OF PECTIN BASED NASAL MUCOADHESIVE MICROSPHERES OF RISPERIDONE BY SPRAY DRYING TECHNIQUE

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Abstract:

The aim of this study was to design, develop and evaluate nasal mucoadhesive microspheres of risperidone by using natural polymer pectin. In the present study spray drying method was used for the formulation of mucoadhesive microspheres, which produces dry powder particles of controllable particle size, shape, form, moisture content and other specific properties irrespective of dryer capacity and heat sensitivity. The major objectives of designing mucoadhesive drug delivery system were to reduce nasal mucociliary clearance of the drug, to improve contact time of drug molecule with nasal mucosa, to increase systemic absorption of a drug candidate and to optimize the formulation based on the various evaluation tests. Drug-Polymer interaction study such as FTIR, DSC and XRD revealed that both the drug and excipients were compatible with each other and no interaction was found in between them. Based on other parameters such as particle size 11.51 ± 0.12 µm, production yield 21.33± 0.43 %, entrapment efficiency 60.12± 1.96 %, drug loading 16.22± 0.93 %, mucoadhesion strength 79.10± 2.50 and swelling index 0.612 ± 0.05 batch R1 was optimized by applying 3^2 full factorial design. Batch R1 also showed good results for drug release i.e. 96.07 % at 240 min, 81.15 % *ex-vivo* permeation at 240 min and microscopic observations for histological study indicated that the formulation has no significant effect on the microscopic structure of sheep nasal mucosa.