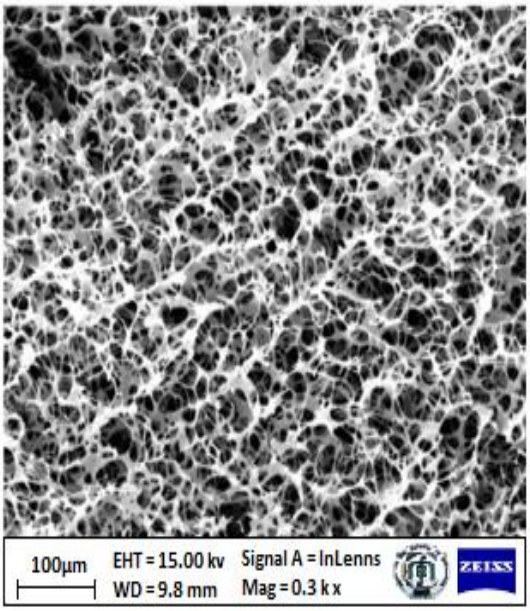
Development of Salbutamol Sulphate Embedded Transmucosal Nasal Inserts

This is a SPiCE funded project under VGST, Govt. of Karnataka being investigated by Dr. S. Bharath and Mr. Arjun Jadav S from the Faculty of Pharmacy.

The project involves development of mucoadhesive nasal inserts embedded with an anti-asthmatic drug salbutamol sulphate for administration in the nasal region to achieve longer nasal residence time and thus increase bioavailability.

Majority of conventional oral dosage forms available are associated with the low bioavailability problems due to short half-life, extensive first pass metabolism and poor stability in the gastro-intestinal tract. Nasal drug delivery is a promising alternative for oral and also intravenous routes of drug administration for systemic circulation to have immediate or delayed drug action. Salbutamol sulphate is a short acting β_2 receptor agonist, used in the treatment of asthma and COPD with an oral biological half life of 1.5 hours. which will increase the dosing frequency and decrease patient compliance. Mucoadhesive polymer is synthesized to increase the mucoadhesivity of the dosage form and increase nasal residence time. The synthesized polymer is identified and confirmed by different analysis like SEM, XRD, DSC, TGA and Mass spectroscopy. Nasal inserts of salbutamol sulphate are formulated using blend of polymers in different ratios by molding method using lyophilization technique and characterized. The optimized formulation showed a sustained drug flux with Peppas as the best fit model for drug release kinetics.


100µm
EHT = 15.00 kv
WD = 9.8 mm
Signal A = InLenns
Mag = 0.3 k x
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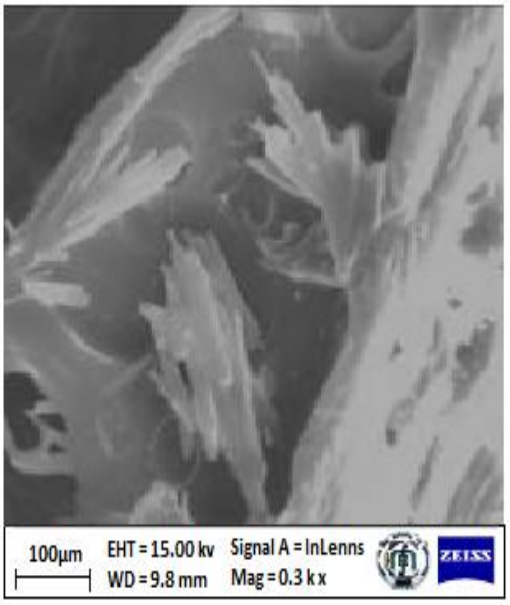
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