

Spray-Dried, Biodegradable, Drug-Loaded Microspheres for Use in the Treatment of Lung Diseases

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Abstract : Objective: The Carbopol Microsphere of Linezolid, a drug used to treat lung disease (pulmonary disease), was prepared using Buchi B-90 nano spray-drier. Methods: Production yield, drug content, external morphology, particle size, and in vitro release pattern were performed. Results: The work was 79.35%, and the drug content was 66.84%. The surface of the particles was shriveled in shape, with particle size distribution with a mean diameter of 9.6 μm ; the drug was released in a biphasic manner with an initial release of $25.2 \pm 5.7\%$ at 60 minutes. It later prolonged the release by $95.5 \pm 2.5\%$ up to 12 hours. Differential scanning calorimetry (DSC) revealed no change in the melting point of the formulation. Fourier-transform infrared (FT-IR) studies showed no polymer-drug interaction in the prepared nanoparticles.

Keywords : nanotechnology, drug delivery, Linezolid, lung disease

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