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Formulation, evaluation and optimization of bilayer tablet of risedronate sodium and diclofenac sodium for corticosteroid induced osteoporosis

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The aim of present invention is to Formulation and Evaluation of Bilayer Tablet of Risedronate Sodium and Diclofenac Sodium. Risedronate Sodium is used for the treatment of corticosteroid induced osteoporosis in men and women and postmenopausal osteoporosis in women. Bi-layer tablet is a new approach for successful development of controlled release formulation along with various features to provide successful drug delivery. Two layers (immediate release layer and controlled release layer) were formulated separately using different polymer and compressed by using direct compression technique. In dissolution study first drug i.e. Risedronate Sodium releases within 30 min. which is desired criteria then the second drug i.e. Diclofenac Sodium showed sustained release up to 12 hours. According to results of percentage cumulative drug release, it was concluded that F9 and F5 were optimized batches for IR and SR respectively. Release kinetics was carried out and it was found to be zero order release and from assay drug content was found to be in limits. The formulation was compared with marketed formulations and found f1 and f2 factor which showed good results.

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Numerical analysis of the porous structure of mineral adsorbents using the fast multivariant numerical procedure of adsorption system identification with the clustering-based adsorption models

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The optimal selection of the methods and conditions to produce adsorbents requires reliable and accurate description of the parameters of the microporous structure and adsorption processes. Many theories of the adsorption processes were developed in the past century, which assume different mechanisms of physical adsorption and various simplifications. This work presents the results of the application of new mathematical adsorption models with the unique numerical fast multivariate numerical identification procedure as the universal tool for analyzing the porous structure of the mineral adsorbents. The proposed method yields a broader range of reliable information on the microporous structure of the analysed material, which is particularly useful for the assessment of the impact of production process conditions and modifications on the development of both geometrical and energetic properties of the surface of mineral porous materials.

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