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# Strategies to design porosity osmotic tablet (POT) for delivering low and pH-dependent soluble drug using an Artificial Neural Network (ANN)

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The study was aimed towards POT containing isradipine as a low and Ph.D.ependent solubility was optimized based on the simultaneous optimization technique in which box behnken design and an ANN were incorporated. Nonlinear relationships between the causal factors and the response variables were represented well with the response surface predicted by ANN. Three causal factors, i.e.,osmotic pressure promoting agent rate (Lactose:Fructose),PEG400 content in coating solution and coating weight,were evaluated based on their effects on drug release rate. *In vitro* dissolution profile time profiles at four different drug releases at 1,12,20 and 24h using STATISTICA8. The dosage forms were technologically very sophisticated systems with complicated relationships between the independent variables and the dependent variables. The core tablets of isradipine were prepared by direct compression method. A total of 15 runs with triplicate center points are taken along with the observed responses and other release parameters. An increase of Lactose:Fructose along with PEG400 resulted in increase in the percentage of isradipine whenever increase of coating weight decrease release rate. Theoretical predetermined criteria of release profile (Y1=7%, Y2=51.47%, Y3=83.82% and Y=99.5%).We selected optimal formulation according to distance function method defined in equation, where composition of Lactose: Fructose, PEG400 and coating weight were 1.25:0.75.22% and 2.5% respectively. Drug release profile predicted by the ANN coincided well with the experimentally observed values with f1and f2 values as 11.19 and 70.07 respectively. The present research work it can be concluded that optimization of POT containing osmotic agent, pore forming agent and coating weight were successfully accomplished by using RSM and ANN.

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