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Controlled - Release Effervacent Floating Tablet of Verapamil Hydrochloride: Development and Opitmization

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Abstract : The objective of this study was to controlled - release effervescent floating tablet of verapamil hydrochloride, development and optimization in combination with natural polymer Xanthan Gum.Tablets were prepared by direct compression, using Xanthan Gum, HPMC K15 M, PVP K30, polymer in various proportions in combination, Further, the Prepared Floating Tablet were characterized for Weight variation, Friability, Hardness, Thickness, Uniformity, Drug-excipient compatibility, *In vitro* floating, Swelling Index and Stability studies. Complete swelling was achieved by the end of 8 h, so percent swelling was determined at the end of 8 h for all the developed formulations. The formulations F1, F5, F6, F9, and F10 exhibited more than 75% drug release at 12 h. The formulation F1 exhibited a maximum of 30 % drug release in the 1st hour and constant release for almost upto 12 h. Based on the *in vitro* evaluation data, formulation F1 was considered as optimized formulation. On calculating and comparing R2 values for Higuchi, Korsmeyer-Peppas, matrix, and other models, F4, F5, F7, and F12 gave a good fit to the matrix model, F10 fitted the Higuchi model, and the remaining formulations were best fitted in the Korsmeyer-Peppas model. From the studies, it has been observed that effervescent based floating drug delivery system is a promising approach to achieve controlled release behavior containing Xanthan Gum, HPMC K15 M rate controlling polymer for the effective treatment high blood pressure and to control angina.

Keywords: Verapamil Hydrochloride, Xanthan Gum, floating tablets, Release kinetics.

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