

Formulation and evaluation of fast disintegrating sublingual tablets of Rizatriptan

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In our study, Rizatriptan sublingual tablets 100mg were prepared by using super disintegrants crospovidone, croscarmellose sodium and L-HPC at different concentrations. The values of blend parameters evaluated within the prescribed limits and shows good free flow property. Angle of repose of the powder mixture prepared for tablet preparation ranged from $29^{\circ}.9^1$ - $32^{\circ}.3^1$ and was within the Pharmacopeial limits. The compressibility index was calculated for the powder mixture and was within the range of 10.45-14.21%. The hausner's ratio was calculated and the range of the ratio is 1.11-1.15. If the ratio value is closer to one then the powder mixture has good flow property. The tablets were prepared by direct compression method using single rotary tablet punching machine with 7mm punch. Drug content in the tablet was determined by dissolving it in the buffer and the drug content is determined by serial dilution. The percentage drug content of all formulations was found to be between the ranges of 98.34-100.27%. The hardness of the tablet was calculated by using Monte's hardness apparatus and the values were within the range of 2.4-3.1 kg/cm². The thickness of the tablet was calculated by using Vernier calipers and the thickness of the tablet was found to be 2.67-2.94 mm. In all the formulations the friability values are less than 1% and it is within the limits. Wetting time of the tablets lies between 7-16secs. Among all the formulations, F-10 showed less wetting time of 7.2secs as it in mixed with the super disintegrants crospovidone and croscarmellose sodium. Water absorption ratio of the tablets was found to be in the range of 27.18-42.18%. Disintegration time of the sublingual tablets was found to be between 11- 18secs which should be as low as possible to show quick onset of action. Increasing the amount of super disintegrants caused the decrease in the disintegration time. The formulation F3 was kept for stability studies in stability chamber for 25°C/60%RH and 40°C/75%RH for 3 months. No significant changes were seen in the formulation. There was a slight increase in hardness, disintegration time and slight decrease in percentage drug release. After subjecting the tablets to in vitro dissolution studies for 10 mins in pH 6.8 phosphate buffer in USP model I apparatus at 50 rpm, formulations F1 showed 81.96%, F2 showed 90.46%, F3 showed 98.79%, F4 showed 78.34%, F5 showed 87.38%, F6 showed 95.9%, F7 showed 77.38%, F8 showed 85.87%, F9 showed 92.54% and F10 showed 99.34% drug release. From the above percentage of drug release values, F1, F4 & F7 were less than 85% after 10mins. F2, F5, F8 & F9 batches showed drug release ranging from 85 to 95% whereas F3, F6 & F10 showed excellent drug release of more than 95%. Among these three the optimum formulation is F10 but F3 was selected as a best formulation because of its best mouth feel. The mixing of super disintegrants with the drug alters the dissolution rate and plays important role in the drug release. Higher the concentration of super disintegrants increases the amount of drug release.

Biography

BHARATHI DHASAN has completed M.Pharmacy from Birla Institute of Technology, Mesra, Ranchi and Ph.D from Tamil University Thanjavur. He has extensively worked on phytochemicals and natural products research in various industries for about 12 years. Currently he is heading the department of pharmaceuticals at Arulmigu Kalasalingam College of Pharmacy, Tamilnadu, India. He has published more than 12 papers in reputed journals.

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