

Design and Evaluation Of Metronidazole Vaginal Tablet For Once Daily Administration

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Abstract : In this study bioadhesive sustained release tablets of metronidazole for once daily administration were formulated. This formulation helps to increase the localized effect of metronidazole by formulating the vaginal bioadhesive tablet and to increase the ease of application when compared to various types of vaginal gels and creams that are available in the market. Metronidazole is a nitro imidazole derivative class of anti-protozoal drug used to treat amoebiasis, vaginitis, trichomonal infections, treponemal infections and giardiasis. The objective of the present study is to formulate the bioadhesive controlled release drug delivery system which would remain in contact with the vaginal tissue for prolonged period of time in view to maximize the bioavailability and therapeutic efficacy of the drug. Bioadhesive tablets were prepared using metronidazole and sodium alginate in different proportions by wet granulation method. The prepared tablets were evaluated for weight variation, hardness, friability, dissolution and swelling studies. The release of drug from various vaginal bioadhesive tablets exhibited the following order $F_4 > F_1 > F_3$, but F_2 exhibited faster drug release compared to other formulations, which is not a desired characteristic for the treatment of vaginosis. By observing the above results, more Ca^{+2} ions became available to bind with sodium alginate during the wet granulation stage of the preparation. As a result better and stronger gel was formed when high amount of calcium carbonate was used. As the concentration of Ca^{+2} ions increases, stronger gel of calcium alginate is formed that delay the influx of the dissolution medium and efflux of the dissolved drug out the matrix. As a result drug is released in amore sustained manner.

Keywords : metronidazole, sodium alginate, wet granulation.

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