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Multiple Unit Pellets (MUPS) as A Tablet for Novel Drug Delivery System: A Review

Rana Mazumder^{1*}, Beduin Mahanti¹, Rabindra Narayan Pal²,
Shayeri Chatterjee¹

¹School of Pharmacy, Techno India University, EM 4, Sector-V, Kolkata-700091, West Bengal, India.

²Department of Pharmaceutics, Calcutta Institute of Pharmaceutical Technology & Allied Health Sciences, Banitabla, Uluberia, Howrah-711316, West Bengal, India.

Abstract : Oral drug delivery system becomes challenging when the drug product needs to be delivered in modified release pattern in especially since it is difficult to swallow for them. Compaction of multiparticulates, commonly called Multiple Unit Pellet System (MUPS), is one of the more recent and challenging technologies that combine the advantages of both tablets and pellet-filled capsules in one dosage form. This article reviews the advantages and drawbacks of multiple unit pellet system, properties of an ideal multiple unit pellet system dosage form, mechanisms involved in their compaction, their disintegration and dissolution behaviour, objectives/rationale involved in the design of dosage form, challenges in their compaction and key variables to be considered in successful production of multiple unit pellet system. Compressed multi-particulate system prepared by using pellets have several pharmacokinetic, pharmacodynamic, commercial and other advantages as mentioned henceforth in this review article. It includes not only different types of modified release pellets that can be compressed into multiple unit pellet system. This review also presents detailed explanation on physicochemical properties of pellets and formulation strategies of multiple unit pellet system. This unique feature of multiple unit pellet system (MUPS) makes them a suitable candidate for the delivery of different types of drug molecules for a variety of therapeutic purposes.

Key words : Oral drug delivery system, Multiple unit pellet system (MUPS), compressed multi-particulate, Pharmacodynamic.

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