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Formulation, Development and Evaluation of Anti-diabetic Chewable Tablets

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Abstract: *The development and evaluation of anti-diabetic chewable tablets formulated with Sitagliptin require a comprehensive understanding of the drug's physical and chemical properties, as well as the pre-formulation studies conducted to assess its compatibility with excipients. In this study, Sitagliptin chewable tablets were prepared using the wet granulation method, ensuring uniformity and stability of the formulation. Various pre-compression parameters such as bulk density, tapped density, Carr's index, Hausner's ratio, and angle of repose were evaluated to assess the flowability and compressibility of the powder blends. The results indicated acceptable flow properties, with room for optimization to enhance tablet compression uniformity. Subsequent evaluation of the tablets focused on parameters including color, odor, taste, weight variation, diameter, thickness, hardness, and disintegration time. While the tablets exhibited uniformity in most parameters, variations in hardness and disintegration time among formulations were observed, suggesting the need for further optimization. Furthermore, drug content analysis revealed variability among batches, with batch F6 exceeding 100% drug content, necessitating careful consideration to ensure consistent drug delivery. Overall, this study highlights the importance of thorough formulation development and evaluation processes to ensure the quality, efficacy, and safety of anti-diabetic chewable tablets, thereby contributing to improved patient outcomes in diabetes management*

Keywords: Anti-diabetic, chewable tablets, Sitagliptin, formulation development, pre-formulation studies, tablet evaluation, drug content, optimization

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