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Anti-Obesity Drug Discovery and Development

Volume 4

Editors:
Atta-ur-Rahman, *FRS*
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Anti-Obesity Drug Discovery and Development

(Volume 4)

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CHAPTER 4

Development and Characterization of Calcium Silicate Based Formulations for Anti-Obesity Therapy: Orlistat

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Abstract: On health front, today's generation is struggling with increasing rate of obesity which is undisputedly reckoned as a leading cause for a number of pathological conditions *e.g*. coronary heart disease (CHD), high blood pressure, stroke, abnormal blood fats, metabolic syndrome, cancer, osteoarthritis, sleep apnea, obesity hypoventilation syndrome, reproductive problems, gallstones, and type 2 diabetes *etc*. In recent research, calcium silicate based two formulations *i.e*., floating microspheres and floating granules have been developed for anti-obesity drug *i.e.,* orlistat, to deliver the incorporated therapeutic agent in effective concentrations and extended therapeutic course of time. Floating characteristic over the gastric content of such formulations is capable to provide prolonged retention in gastric region. Formulation of microspheres with incorporation of calcium silicate increases the effectiveness of this granular formulation to matchup the desired release pattern with buoyancy. The developed formulations of orlistat are found to be safer and more effective which is the need of day in pharmaceutical industry as an alternative drug delivery system for a highly prevalent and chronic disease like obesity.

Keywords: BMI, Buoyancy, Calcium silicate, Floating granules, Floating microspheres, Gamma scintigraphy, Gastro-retention, *In vitro* drug release, Obesity, Orlistat, Pharmacokinetics.

INTRODUCTION

Obesity is a disorder related to the accumulation of extra body fat to an extent which triggers health risks in terms of different diseases. It also leads to the reduction in life expectancy with or without stimulating any health complications [1]. Body mass index (BMI) is generally used for the assessment of obesity. BMI is first introduced by Belgian statistician and anthropometrist, Adolphe Quetelet

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