

## Design and In-vitro Evaluation of Bilayer Floating Tablet Containing Mucoadhesive Microparticles of Olanzapine.

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### Abstract

**Introduction:** The purpose of this article was to design a bilayer floating- drug delivery system using mucoadhesive microparticles of olanzapine as a model drug.

**Methods and Results:** Mucoadhesive Microparticles were fabricated with coacervation method by using of mucoadhesive polymers such as sodium bicarbonate, chitosan and ethyl cellulose. The floating layer containing sodium bicarbonate, HPMC, carbapol, PVP and olanzapine mucoadhesive microparticles was compressed and an immediate release layer was added and then both layers were compressed. Floating properties of the tablets, the *in vitro* drug release, buoyancy lag-time and swelling index were evaluated. The results showed that incorporation of olanzapine mucoadhesive microparticles in floating tablet improved the release kinetic to biphasic so the drug was immediately release in 30 min after floating and lasted more than 8 hours. Also the release of olanzapine was based on zero order kinetic. This suggested the synergic effect of micro particulate system as well as floating property in long time drug release in gastric fluid.

**Conclusions:** This kind of tablet is suitable for long term delivery of olanzapine in upper gastric parts or segments.

**Key words:** Olanzapine, Bilayer tablet, floating tablet, Mucoadhesive microparticles.

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