**ABSTRACT**

Olanzapine is an atypical antipsychotic drug of the thienobenzodiazepine class. It is widely used in treatment of schizophrenia and to control manic episodes ofbipolar disorder. It is practically insoluble in water. Fast dissolving tablets (FDTs) containing olanzapine were prepared using various superdisintegants called crospovidone, croscarmellose sodium and sodiumstarch glycolate by direct compression method. The Simplex lattice design was applied to optimize the effect of mixture of the above superdisintegrants. The superdisintegrant crospovidone, croscarmellose sodium and sodium starch glycolate were independent variables and the observed responses (dependable variables) were disintegration time, hardness and friability. The prepared FDTs were evaluated for appearance, hardness, friability, disintegration time, wetting time, water absorption ratio, estimation of drug content and in vitro drug release studies. The optimized formulation shows the minimum disintegration time of 16.6 s and release maximum amount of drug in 10 min. Short term stability studies indicated no significant changes in hardness, friability, in vitro disintegration time, drug content and in vitro drug release.

**Keywords**: FDTs; Olanzapine; Superdisintegrants; Optimization; Simplex lattice design