Formulation and physicochemical evaluation of dimenhydrinate Oral Fast Dissolving Film.

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Abstract: Oral Fast Dissolving Films (OFDF) are the novel drug delivery systems for patients who couldn’t swallow. This new technology also called “formulations taken without water”, quick onset of action, by passing the first pass liver metabolism, improve patients compliance and better masking of bitter taste of drugs are some of its benefits. Dimenhydrinate is a first generation antihistamin that use for motion sickness.

The aim of this study is to formulate and evaluate OFDF of dimenhydrinate. We tried Hydroxypropylmethylcellulose 6cps (HPMC), HPMC 50cps, Hydroxyethyl cellulose (HEC), Methyl cellulose (MC), Eudragid® L, Polyvinylpyrolidone K30 (PVP), Polyvinylalcohol 72000 (PVA), Cellulose Gum (CG), to prepared the film by solvent casting technique. we prepared many formulations without drug and evaluate these films properties, such as elasticity, thickness, mucoadhesivity, and invitro disintegration time. Finally HPMC 6cps, PVA, CG, PVP and the combination of these polymers were selected to adding drug. We had used Propylen glycol, Poly ethylene glycol and Glycerin as plasticizer.

The strips were evaluated for drug content, invitro dissolution studies, mucoadhesivity, surface pH study, film thickness, weight and elasticity. based on the evaluation parameters, in the best formula, (containing HPMC 6cps and CG) Invirto release studies by using dissolution tester based on USPXXII (apparatus 2, 50 rpm, 37 °C) indicated more than 75% drug release within 10 minutes.

It was concluded that the OFDF of dimenhydrinate can be made by solvent casting technique with enhanced dissolution rate. We expect that bioavailability of drug may be improve. the OFDF of dimenhydrinate can use easily without water hence has better patient compliance.

Keyword: Oral Fast Dissolving Film, Dimenhydrinate, Solvent casting, HPMC 6cps.