

## Formulation of nicotine buccal adhesive control release tablet for nicotine replacement therapy

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**Background and Aims:** Nicotine replacement therapy (NRT) is the most widely used pharmacological aid in smoking cessation. NRT provide an alternative source of nicotine to ease withdrawal symptoms. Nicotine buccal adhesive tablet formulation with attachment to buccal mucus can release nicotine as a regulated pattern that supplies the immediately and lengthy nicotine needed of smokers.

**Methods:** Different formulations of nicotine hydrogen tartrate (NHT) by the common bioadhesive polymers such as HPMC, NaCMC, and carbapol (CP) 934 were produced with direct compression tablet. Mg (OH) 2 as a pH-increasing additive was also added into the formulations to increase the absorption of NHT from the buccal mucosa.

**Results:** The composition of HPMC50cps and CP934 has the most effect in the reducing of drug release rate and adhesion power in surface unit. The second composition of NaCMC and CP934 from this aspect was in next step. In both compositions, increasing of relation CP934 to HPMC or NaCMC because reducing in rate of release and increasing in adhesion power. Formulations containing NaCMC release drug rapidly while formulations of CP934 have longer release time.

**Conclusions:** In all formulations, decrease in release rate and increase in adhesion power was observed with increasing of polymer content. The buccal adhesive tablet formulations containing HPMC and CP934 showed best results in all aspects as compared with other formulations.

**Keywords:** Buccal adhesive; Nicotine replacement therapy; Bioadhesive polymers