

## Taste-masked fast disintegrating tablets of prednisolone for oral delivery

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**Background and Aims:** Prednisolone is a potent glucocorticoid with high efficacy against asthma and inflammatory diseases. Very bitter taste of the drug is the major challenging problem especially in pediatric and geriatric formulations. The aim of the present study was to formulate a taste-masked orally disintegrating tablet of prednisolone for pediatric and geriatric use.

**Methods:** Granulation and microencapsulation were used as methods for coating the drug particles with taste masking polymers. The drug particles were masked by ethyl cellulose and Eudragit E as the coating polymers by granulation and microencapsulation by emulsion-solvent evaporation technique. Granules were optimized based on different variables such as drug to polymer ratio, mixing time and concentration of polymer solution and microencapsulation technique was optimized by varying the polymer to drug ratio, ratio of aqueous phase to organic phase and the type and concentration of the emulsifier. Finally, the optimized granules and microparticles were formulated into tablets by direct compression method using different superdisintegrants and tablets were evaluated for disintegration time, release behavior and taste.

**Results:** Both methods with both polymers provided taste-masked particles. Microencapsulation was more effective for masking the bitter taste of the drug, but the granulation method is preferable for industrial scale. Microparticles of drug with ethyl cellulose tasted better than the particles with Eudragit E, but the release of drug was much sustained with ethyl cellulose compared to Eudragit E which released the drug much faster. Tablets formulated with croscopolone and Ac-Di-Sol (1:1 ratio) as superdisintegrants were disintegrated in less than 1 min.

**Conclusions:** Tablets formulated from taste-masked granules of prednisolone with Eudragit E could be an alternative formulation for use in pediatric and geriatric patients.

**Keywords:** Prednisolone; Taste-masking; Fast-disintegrating tablets; Microencapsulation