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## Formulation, development and *in vitro* evaluation of triamcinolone acetonide-loaded bioadhesive gels for the treatment for oral ulcers

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Hydrogels formed from mucoadhesive polymers are now widely used in buccal drug delivery system for treatment of various oral conditions. The aim of the study was to develop and examine sodium alginate (SA) and hydroxypropylmethyl cellulose (HPMC) based bioadhesive gels containing triamcinolone acetonide (TA) to treat oral ulcers. Gel formulations were prepared with varying concentrations of SA and HPMC by two different methods of drug loading. The formulations were evaluated for pH, viscosity, drug content and Fourier Transform Infrared Spectroscopy (FTIR) was used to study the compatibility of drug with gelling polymers. *In vitro* drug release study was performed in Franz diffusion cell using artificial membrane and release profile were fitted in to various release kinetic modeling. FTIR spectra suggested that there was no interaction observed between TA, sodium alginate and HPMC. Drug content of all the formulations was found to be more than 94% and viscosity was in the range of 9.97-16.2 Pas and exhibited pseudo plastic flow behavior. Drug release profile showed controlled release of drug up to 6 hours and followed Non-Fickian diffusion mechanism. Increasing the concentration of HPMC resulted in gel viscosity increase. However, decrease in drug release was observed with HPMC concentration range of 1.6 to 2.0%. In conclusion, bioadhesive gel formulated using sodium alginate and HPMC is a potential buccal drug delivery vehicle for sustained release of TA for up to 6 hours.

### Biography

Tan Yen Yee is currently a final year undergraduate student pursuing her Bachelor of Dental Surgery (BDS) at International Medical University Kuala Lumpur Malaysia.

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