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## TITLE

### Preparation and in vitro Evaluation of Triamcinolone Acetonide nanosuspensions for Topical Ophthalmic Drug Delivery

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The purpose of this project was to prepare triamcinolone acetonide (TA) nanoparticles (NPs) using poly (d,l-lactide-co-glycolide) (PLGA) (negative surface charge) and Poly( -amino ester)(PBAE) (positive surface charge) polymers, and evaluate their physicochemical characteristics for use as a topical nanosuspension in ocular drug delivery. This is based on the background that applying topical nanosuspension of a drug may improve its effectiveness in the treatment and prevention of uveitis and eliminate the side effects associated with its ocular injection as well. Polymeric NPs of TA were prepared using the modified emulsification/solvent diffusion method followed by successive filtration through 3, 2, and 0.8  $\mu$ m filters to eliminate the non-encapsulated TA crystals. Factors related to preparation (type of stabilizer, homogenization method, the drug/polymer ratio and solvent elimination method) were studied in terms of their effect on NPs size as well as drug loading efficiency. Physicochemical studies including mucoadhesiveness study, Scanning electron microscopy (SEM), Differential scanning calorimetry (DSC), Fourier transform infrared spectrometry (FT-IR), X-ray diffraction, and in vitro TA release on PLGA-TA- NPs ( $\zeta$  potential: -6.8 mV) and PBAE-TA-NPs ( $\zeta$  potential: +17 mV). NPs of appropriate size (180-195 nm) with a smooth surface, controlled release profile and noticeable mucoadhesiveness properties were resulted and the drug was dispersed and loaded well within the polymers (3%-5.5%). Accordingly, the prepared NPs seem to be a suitable alternative for use in ocular drug delivery with the aim of treatment and control of uveitis.

#### Biography

Araz Sabzvari graduated from Tabriz pharmacy faculty with Pharm D. degree in 2006. He has been a Pharmaceutics PhD student in Tehran University of medical science, faculty of pharmacy since 2006. He has three publications (as arazsabzevari). he was a managing director of Did GostarTeb Co. (2008-2009) board member of Did GostarTeb Co. (2008-2010) Managing director and vice chairman of Did GostarDarou (2009 -2010) vice chairman of Nano Fanavarane Darou Alvand Co. (2011- up to now)