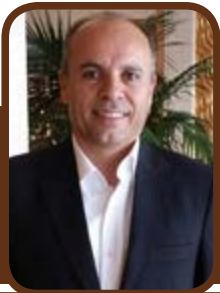


# EUROPEAN FOOD AND NUTRITION CONGRESS & WORLD COLLOID CONFERENCE

October 25-26, 2018  
Vienna, Austria



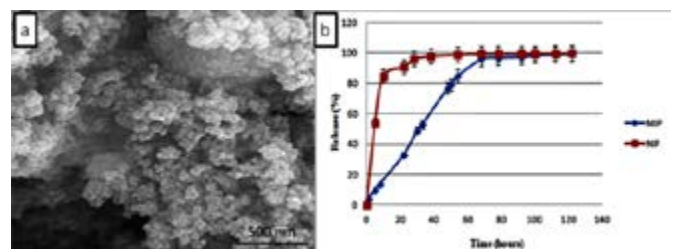
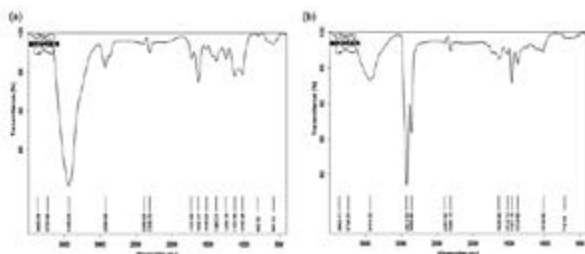
## Ramin Zibaseresht

AJA University of Medical Sciences, Iran

### Synthesis and characteristics of a molecularly imprinted polymer with an antibiotic template based on polyvinylalcohol (PVA)

Skin is responsible for protecting the body against microbes and harmful external factors. Tissue in massive burns is a suitable site for the growth of microorganisms. Systemic antibiotics are not effective in these injuries. Hence, topical antibiotics drug should be employed to control infection in such wounds. Gentamicin is well known as bactericidal agent that inhibits the bacterial proteins production. Molecularly imprinted polymers (MIP) are intelligent nano-systems which are formed in the presence of a target molecule (i.e, antibiotics) and exhibit large chemical and exclusive affinity towards the target molecule, with their mechanism resembling that of anti-bodies or enzymes. Moreover, molecularly imprinted polymer (MIP) shows a good performance in drug delivery and can prolong the durability of drug. MIP nanoparticles possess many excellent characteristics such as high surface and low cost, easy synthesis, high stability under various physical and

chemical conditions, and reusability. In the present study, disperser Span 60 is dissolved in liquid paraffin to constitute the oil phase. An aqueous PVA solution is mixed with gentamicin constitute the water phase. The water phase is poured into the oil phase. Finally, the template is removed by Soxhlet Extraction method using acetone. The nanoparticles of MIP were characterized using conventional methods such as scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR). The absorption bands appeared in FTIR spectroscopy indicated that the reaction between PVA and glutaraldehyde took place which in turn led to the formation of MIP nanoparticles (Fig. 1). The SEM micrograph showed that the average size of the synthesized MIP nanoparticles were 25 nm with a relatively uniform particle size distribution (Fig. 2a). Drug release was also examined in obtained nanoparticles which gradually reached to 98% after 110 h (Fig. 2b).



### Biography

Ramin Zibaseresht is an Associate Professor in Chemistry at Maritime University of Imam Khomeini in Noshahr and Adjunct Associate Professor at AJA University of Medical Sciences in Tehran. He received his BSc in Chemistry from Shiraz University, MSc in Inorganic Chemistry from Pune University, and PhD in Inorganic Chemistry from the University of Canterbury. He is currently the Head of Biomaterials and Medicinal Chemistry Research Centre in Tehran.

rzi12@uclive.ac.nz