

# 12<sup>th</sup> World Congress on Pharmaceutical Sciences and Innovations in Pharma Industry

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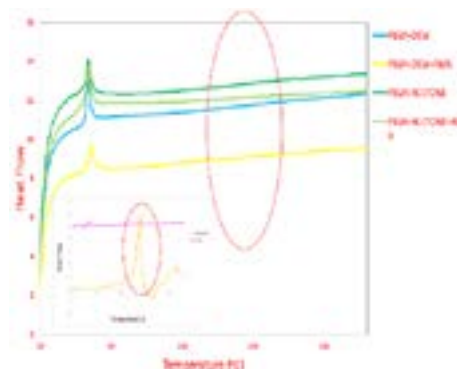
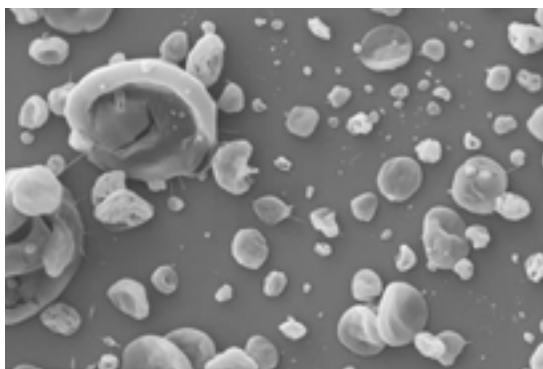
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### Development of electro-sprayed multi-composite particles for prospective drug delivery

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Ever since the introduction and pharmaceutical development of antibiotics (~1940's), public health and wellbeing has improved significantly. However, due to drug misuse, mismanagement and poor patient compliance, bacterial antibiotic resistant now poses a serious threat to global healthcare. Antibiotic resistance is a new and upcoming threat to global healthcare. Many novel methods have been developed and tested to combat and prevent this resistance; one such technique involves the use of nanotechnology, specifically nanoparticles created using the Electro Hydrodynamic atomization (EHDA) technique, and the use of metallic nanoparticles (NP). Electro spraying process (ESy) is a method of atomizing droplets acquired by an electrically forced liquid (e.g. polymeric solution) jet through a needle/nozzle into a collecting platform. The advantages of such nanoparticles and nano-based drugs are enhanced bioavailability and better target-specificity. In this piece of work, we have successfully prepared PLGA (poly (lactic-co-glycolic acid) and silver composite particle containing amoxicillin (AMX) using the electro spraying technique. The morphology, chemical structure and the thermal behavior of the prepared formulations were investigated. The SEM images showed that particle sizes of the prepared particles are below 10  $\mu\text{m}$ , which is essential for further biological use. The results confirmed that amoxicillin was successfully entrapped in the prepared particles.



#### Recent Publications

1. Hajipour M J, Fromm K M, Ashkarran A A, Jimenez de Aberasturi, Idoia Ruiz De Larramendi et al. (2012) Antibacterial properties of nanoparticles. *Trends in Biotechnology*. 30(10):499-511.
2. Huh A J and Kwon Y J (2011) Nanoantibiotics: a new paradigm for treating infectious diseases using nanomaterials in the antibiotics resistant era. *Journal of Controlled Release*. 156(2):128-145.
3. Mehta P, Haj Ahmad R, Rasekh M et al. (2017) Pharmaceutical and biomaterial engineering via electrohydrodynamic atomization technologies. *Drug Discov Today*. 22(1):157-165.

#### Biography

Suleman Ramzan has completed his degree in Pharmaceutical Science, and is now midway through his PhD, researching the use of nanomaterials for prospective drug delivery, and against antimicrobial agents resistant to common therapeutic treatments.

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