

17th Annual Congress on

Pharmaceutics & Drug Delivery Systems

September 20-22, 2018 Prague, Czech Republic

Low molecular weight heparin-loaded nanofibers prepared with different core/polymer solutions



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Biography

Gamze Rüzgar Özemre has completed her graduation from Ankara University in 2012. She is studying for her Doctoral studies at Gazi University School of Pharmacy, Department of Pharmaceutical Technology. Her areas of interest are nanotechnology and drug delivery systems. She has presented various poster presentations on these topics.

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Heparin and its derivatives, as an anti-coagulant, are considered the drug of choice in the treatment of deep vein thrombosis (DVT) and pulmonary embolism. Due to high molecular weight and high negative charge density, oral bioavailability of heparin is limited and insufficient to provide the desired clinical therapeutic effects. The electrospinning technique, a straightforward procedure applied in the production of nanomaterials, requires a basic experimental setup composed by a high voltage source which provides high electrical field between the tip of a needle and a grounded target at few centimeters from ejection of charged jet. Electrospun nanofibers show great promise for developing many types of novel drug delivery systems (DDS) due to their special characteristics and the simple but useful and effective top-down fabricating process. The aim of this study is the development and evaluation of efficacy of nanofibers to increase the oral bioavailability of low molecular weight heparin. Core-shell nanofibers were prepared using the co-axial electrospinning (NE- 300 Laboratory Scale Electrospinning Unit, Inovenso LTD, Turkey). Therefore low molecular weight heparin which is in the core of nanofibers were protected from degradation and absorbed through the intestine by using different cationic polymers which are insoluble in acidic pH in the shell of nanofibers.

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