Simulation of Betamethasone Release Profiles from In Situ Forming Systems Based on PLGA

Saman Hossein Sarraf[l], Ehsan Marzbanrad[2], Hamid Mobedi[3], Mohammad Rafienia[4],
Hamid Mirzadeh[3], Ahmad Jamshidi[3]
[1]*Islamic Azad University, Science and Research branch*
[2]*Materials and Energy Research Center*
[3]*Iran Polymer & Petrochemical Institute*
[4]*Isfahan University of Medical Sciences*

Recognition of drug release order and adjusting predefined drug release profile is very important to cure the patients and *In Situ Forming* drug delivery system based on PLGA may use for this propose. In this system, drug is transferred into the target by injection and after removal of solvent; a gel is formed there. The gel including drug is gradually degraded and drug is released. We need to do some experiments for determination of drug release behavior, and there is a variety of drug delivery systems in terms of parameters such as type and concentration of drug, type of polymer, etc. to obtain a favorite release order. Therefore, it is essential to do expense and time-consuming experiments. By use of simulation, the favorite drug release will be achieved more easily and less expensively.
In this study, by usage of the results of practical experiments, we try to simulate release of Betamethasone in above-mentioned system. For this work, artificial neural network is used. This simulation shows us to be able to simulate drug delivery precisely and use of this method for prediction of pre-formulation and drug release behavior.