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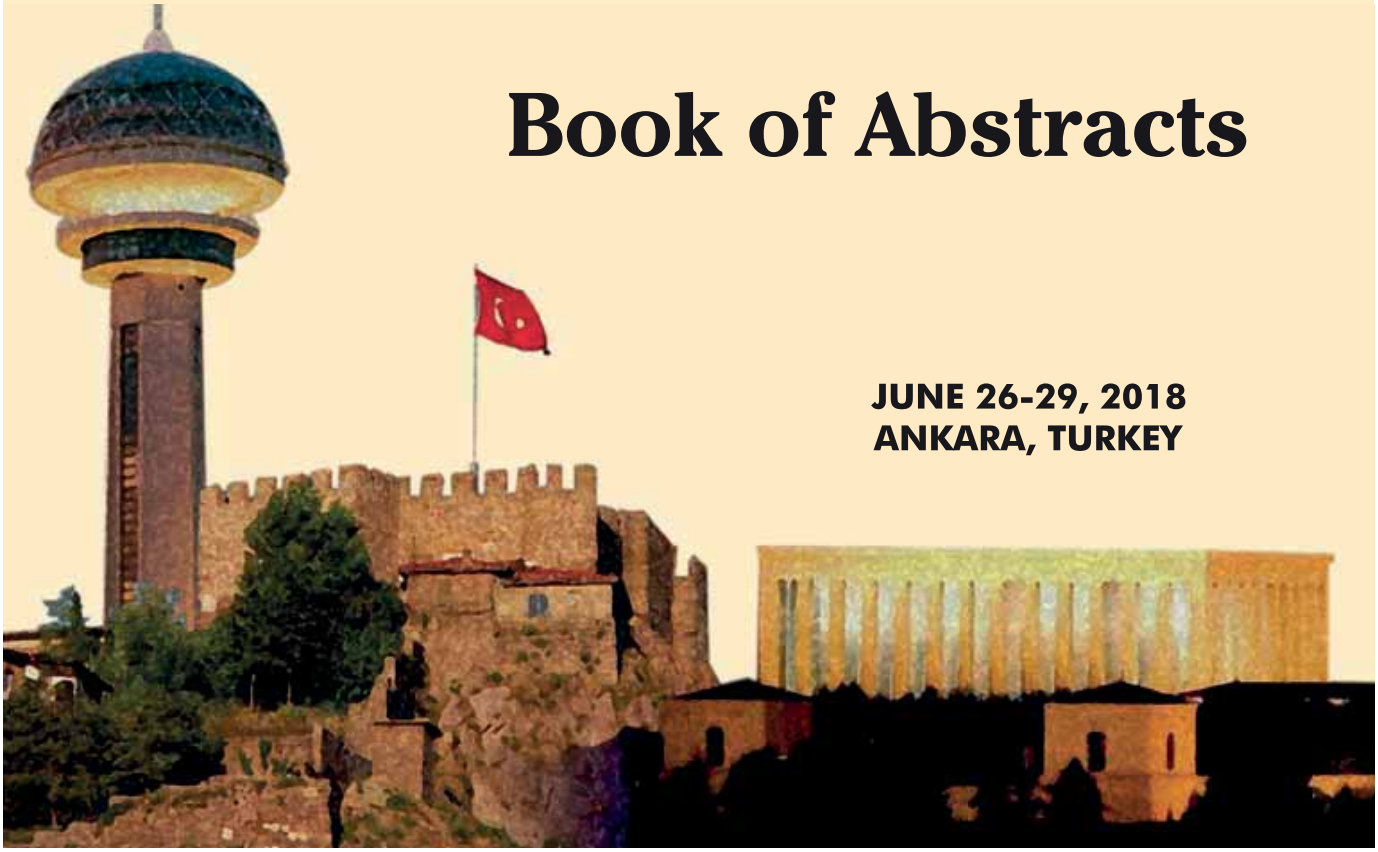
Book of Abstracts



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P-364: IN VITRO RELEASE STUDIES AND HPLC METHOD FOR THE DETERMINATION OF CARVEDILOL IN NANOPARTICLE SYSTEMS

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INTRODUCTION:

Nanoparticle systems are one of the multiparticulate delivery systems and are prepared to improve bioavailability or stability (1). Many advantages of nanoparticle-based drug delivery have been recognized. In vitro drug release studies are important and this studies help in evaluation of sustained and prolonged release dispersion systems (2). In this study, carvedilol loaded polymeric nanoparticles are determined of drug entrapment efficiency and characterized for in vitro release studies.

MATERIALS AND METHODS:

Entrapment efficiency was estimated by using the HPLC method. In vitro drug release of carvedilol from polymeric nanoparticles were studied through dialysis bag membrane. The temperature was maintained at 37 ± 0.5°C under sink conditions.

RESULTS:

The HPLC method developed was validated for precision, accuracy, specificity and linearity for carvedilol. HPLC conditions are shown in Table 1. Carvedilol loaded nanoparticle formulations were analyzed for entrapment efficiency by HPLC. The in vitro release studies indicated that, although there was an important burst release of the drug in 1 h, it continued in a sustained release way for 48 h.

Table 1. Chromatographic conditions

Stationary Phase	InertSustaine® column (4.6mmx150 mm, C18 Gravity, 3 µm)
Mobile Phase	0.03M potassium dihydrogen phosphate (pH 3.0) buffer: acetonitrile: methanol (60:50:10, v:v:v)
Oven Temperature	40 °C
Flow Rate	0.5 mL/min
İnjection Volume	20 µL
Detection Wavelenght	242 nm

CONCLUSIONS:

This developed HPLC method was also successfully applied for the determination of carvedilol in polymeric nanoparticle formulations, encapsulation efficiency and in vitro release study. The developed formulation is suitable, and represents a promising system for the sustained delivery of carvedilol.

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P-365: DEVELOPMENT AND IN VITRO / IN VIVO EVALUATION OF BISPHOSPHONATE LOADED MEMBRANES FOR GUIDED BONE REGENERATION

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INTRODUCTION:

The aim of this research is utilization of membrane formulation as a barrier material for guided bone regeneration (GBR). The principal idea was developing a biodegradable barrier material preventing soft tissue migration through defect area during bone formation period and promoting osteoblast cells activity with minimized dose of Zoledronic Acid (ZA).

MATERIALS AND METHODS:

Membranes were prepared by polymer solution casting and evaporation. During the process, various amounts of PDLA, TEC, Pluronic F-127 and ZA were dissolved respectively in 5 mL of acetone and poured onto PTFE mold. Afterwards, solvent was evaporated at 37°C during 24 hours.

The morphology of membrane was observed using scanning electron microscopy (SEM) with acceleration voltage of 10kV.

Ortak, H. 226, 227, 246, 247
Oruc Emre, EE. 357, 358, 359, 360, 371, 372
Osmancevic, S. 280
Osmaniye, D. 219, 363, 364, 369, 403, 408, 410, 411
Oszmiański, J. 126
Otles, S. 266
Ozadali Sari, K. 98
Ozakar, E. 318
Ozakca I 59
Ozalp Y. 311
Ozansoy, G. 195
Ozates, NP. 109
Ozatik O. 213
Ozay, Y. 97
Ozbay, E. 333
Ozbay, N. 294, 298
Ozbay, O. 435
Ozbek, B. 415
Ozbek, H. 140, 163, 181
Ozbey, S. 355
Ozbilgin, S. 149, 162, 178, 185
Ozcan, S. 76, 229, 259, 265
Ozcelikay, G. 245
Ozcelikay, G. 51, 221, 222, 223, 224, 226
Ozcelikay, T. 279
Ozcelik, H. 103
Ozcinar, O. 177
Ozdal, ZD. 299
Ozdemir, A. 104, 353, 364, 370, 372, 373, 387, 393
Ozdemir, I. 401, 402
Ozdemir, N. 41, 42, 53, 83, 88, 198, 200, 203, 209, 328
Ozdemir, Ozge. 330
Ozdemir, Z. 119
Ozden Yilmaz, T. 157, 160
Ozek, G. 150
Ozel, A. 334
Ozenver N. 40, 173
Ozer, O. 46, 304
Ozet, G. 38
Ozgenc, E. 29, 93
Ozgen, ZE. 199
Ozhan, G. 70, 99, 112, 315 ,340
Ozkan Ariksoysal, D. 119
Ozkan B. 293
Ozkan, CK. 65, 284, 288, 332
Ozkan, E. 88, 273
Ozkan Hasanoglu, E. 339, 422
Ozkan, SA. 22, 141, 231, 245, 249, 251, 252, 253, 260, 262, 269, 270, 275, 279, 288
Ozkan, T. 418
Ozkan, Y. 65, 122, 175, 176, 284, 280, 288, 332
Ozkan Yilmaz, F. 343
Ozkaya, AR. 122, 237
Ozkay Demir, U. 198, 220
Ozkay, Y. 259, 363, 364, 369, 374, 381, 403, 408, 410, 411
Ozkemahli, G. 101, 416, 425
Ozkul C. 139
Ozler, MA. 360, 361
Ozluer Hunt, A. 343
Ozmen, N. 112, 289
Ozpolat, B 7
Ozsoy, N. 179
Oztanir, M.N. 39
Oztas, E. 70, 99, 112, 340
Ozturk AA. 281, 282, 329
Ozturk, AA. 296, 302, 315, 330
Ozturk B. 335
Ozturk, C. 267, 289
Ozturk Ceylan, O. 396
Ozturk, E. 35
Ozturk, G. 115, 148, 160, 242, 244
Ozturk, I. 138, 177
Ozturk, K. 260
Ozturk, M. 358, 360, 361
Oztürk, N. 295
Ozturk, O. 9
Ozturk S. 39
Oz, UC. 330
Ozupek, B. 189
Ozyazici, T. 406
Ozyurek, B. 228, 267
Ozyurt, VH. 266

P

Palabiyik, IM 69, 79, 250
Palaska, E. 268
Parlar, A. 49
Parlar, S. 100
Parvizi Khosroshahi, S. 302
Payze, U. 328
Pedrero, M. 12
Pehlic, E. 414
Pehlivan, M. 49
Pekacar S. 189
Pekcan, AN. 87
Pekel, A. 350, 351
Pekel Bayramgil, N. 325, 326
Peraica M. 16
Perk, BO. 418
Pezik, E. 295
Pilevneli, AD. 166
Pilipovic, S. 280
Pilla, V. 21
Pingarrón, J.M. 12
Pirincci, Y. 409
Polat, EC. 200, 424
Polat, K. 309
Popielarz Brzezińska M. 307
Povedano, E. 12
Poyraz, S. 346, 397, 398, 399
Pratiwi, MY. 83
Protsenko, O. 105

Q

Qader, M. 168

R

Ràfols, C. 76
Rahman, AFM. 85
Rahou, I. 44, 258
Ramadan, SS. 349
Ratih, Asmari, M. 264
Ražić, S. 23, 94
Recber, T. 272
Reis, R. 103
Rencber, S. 68, 319
Renda, G. 161, 214
Rivas, G. 11
Ruiz-Valdepeñas Montiel, V. 12



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