Smart Materials

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Theme: Develop New Path of Smartness

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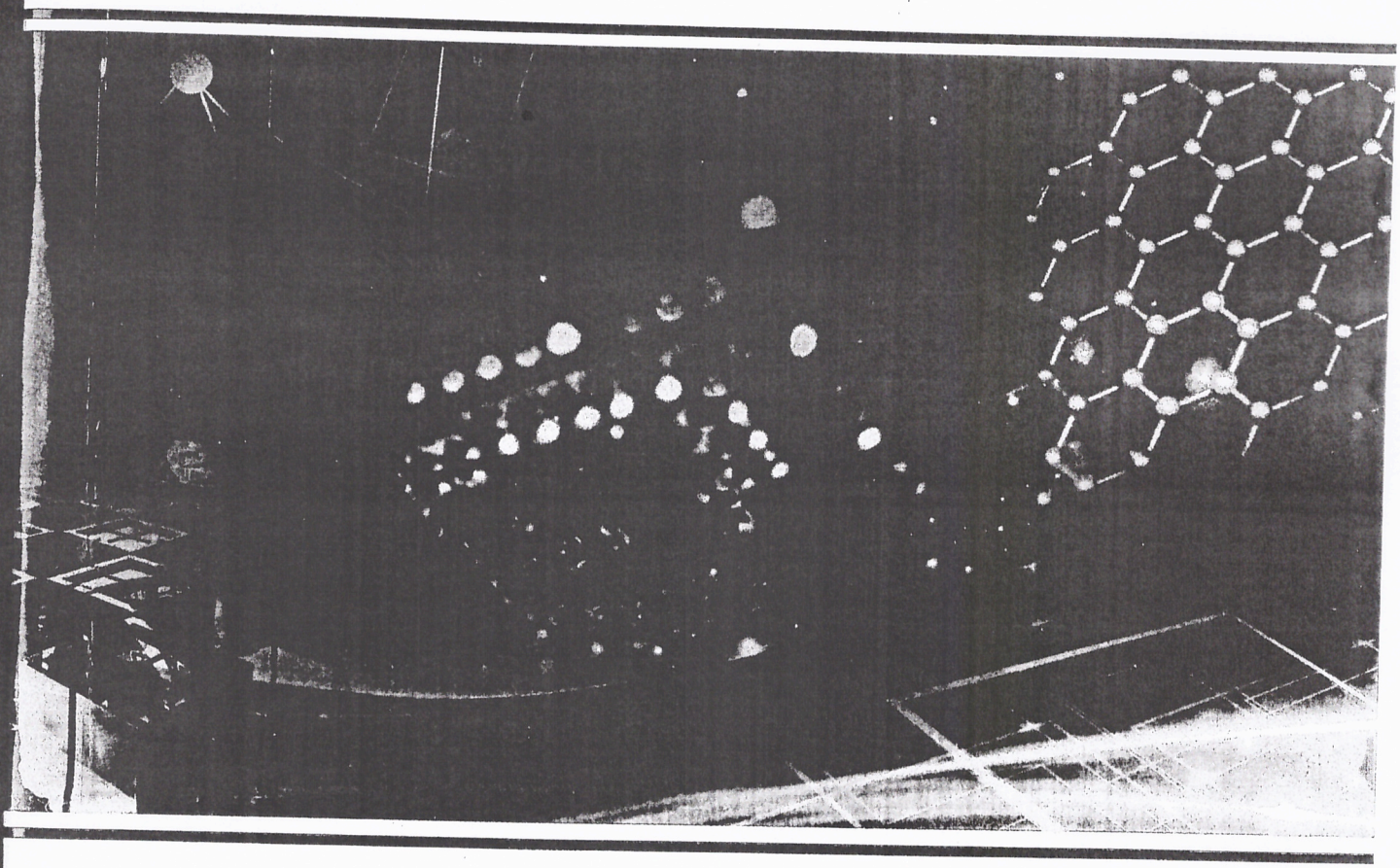

会刊 Conference Abstract Book

Title: Formulation and Characterization Studies of Quercetin, Rutin and Quercetin-Rutin β-Cyclodextrin Complexes

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Abstract

Quercetin (3,3*,4*,5,7-pentahydroxyflavone), is one of the most common flavonoids that has attracted the attention of many researchers because of its widely demonstrated biological and pharmacological activities such as antioxidant, antiinflammatory, antiviral, and anticancer properties. Rutin is also a flavonoid, having a significant scavenging properties on oxidizing species and is effective against ultra-violet radiation induced damages. Despite having superior characteristic properties low aqueous solubility which leads to poor bioavailability limits their use in pharmaceutical applications. Cyclodextrines (CDs) are a group of cyclic oligosaccharides that are composed of α-1,4-linked glucopyranose subunits. The most common CDs are; α–cyclodextrin (α-CD), β–cyclodextrin (β–CD) and γ-cyclodextrin (γ-CD), composed of six, seven and eight glucosyl units, respectively. CDs forms as cone with cavity inside which has a hydrophobic character while having a hydrophilic outer surface. The cavity can receive another molecule depending on the size and shape, which results in enhanced aqueous solubility of the guest molecule. Therefore, in this study 12 different complexes of Quercetin and Rutin with β-CD were prepared by both evaporation and lyophilization methods with [1:1] molar ratio in ethanol:water (1:1,v/v) solvent system. Yield value, entrapment efficacy and aqueous solubility were determined and *in vitro* characteristic properties of the complexes were evaluated by particle size, zeta potential, DSC, XRD, FT-IR and ^{1}H-NMR analyses. As a result of the analyses complexation was identified in detail and enhanced aqueous solubilities of both Quercetin and Rutin were determined by HPLC analyses.

Biography

Dr. A. Alper Ozturk received his B.S. degree from Anadolu University, Faculty of Pharmacy in June 2013. He has started his Ph.D. study about "Formulation and Characterization Studies of Dexketoprofen Trometamol Loaded Polymeric and Solid Lipid Nanoparticles" in September 2013. He was awarded by ERASMUS Internship Programme at University of Cagliari (Italy) for the project of "Formulation and characterization studies of Vitamin C loaded liposome formulations" in 2011. Currently he is working as a Research Assistant at Anadolu University, Faculty of Pharmacy Department of Pharmaceutical Technology since 2014.

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