GAZİ 2nd INTERNATIONAL SYMPOSIUM GPSS SERIES

GAZİ PHARMA SYMPOSIUM SERIES

PHARMA Turkey 13 11 2017

OCTOBER - ANKARA

2ND INTERNATIONAL GAZİ PHARMA SYMPOSIUM

ABSTRACT BOOK

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IN VITRO DISSOLUTION AND CYTOTOXICITY STUDIES ON QUERCETIN AND RUTIN LOADED HP-BETA-CYCLODEXTRIN COMPLEXES

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Quercetin is one of the most important flavonoid has been shown to exert anticancer and antiinflammatory effects [1]. Rutin is also a flavonoid has demonstrated a number of pharmacological activities like antioxidant, cytoprotective, vasoprotective, anticarcinogenic effects [2]. Different drug delivery materials are being constantly developed to overcome the undesirable properties of drug molecules. Amongst them, cyclodextrins (CDs) have been found as potential candidates due to their ability to alter physical and chemical properties of guest molecules through the formation of inclusion complexes [3]. 2-hydroxylpropyl-beta-cyclodextrin (HP-beta-CD), a hydroxyalkyl derivative, is an alternative to alpha-, beta- and gamma-cyclodextrin, with improved water solubility properties [4]. In this study, different inclusion complexes of quercetin, rutin and quercetin/rutin with HP-beta-CD were prepared by both evaporation and lyophilization methods in ethanol:water (1:1,v/v) solvent system. After the evaluation of the characteristic properties of complexes; the optimum formulations were selected for further studies. Release characteristics of the complexes were evaluated with dialysis method at 37°C±1°C in pH 1.2 buffer solution during 2 hours, and analysis results demonstrated that quercetin's release characterictics remained unchanged while the release rate of pure rutin (36.03%) enhanced up to 64.50% and 75.81% for the selected two formulations. In vitro release kinetics were investigated using DDSolver software. Cytotoxicities of complexes on NIH-3T3 (mouse embryonic fibroplasts) cell line were assessed using tetrazolium salt reduction (MTT) assay for 48 hours and analyses results indicated that all formulations showed dose and time-dependent toxicity.

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