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HYDROGELS FOR THE CONTROLLED DELIVERY OF THEOPHYLLINE DERIVATES: PREPARATION AND CHARACTERIZATION

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Abstract: *This paper presents the obtaining of xanthan-chitosan hydrogels with two new entrapped theophylline derivates. The synthesized products were physical-chemical characterized by FTIR spectroscopy and by scanning electron microscopy (SEM). The in vitro release studies of theophylline derivates from the obtained complexes were carried out in similar pH conditions mimicking the gastrointestinal media. The kinetic data were finally analyzed based on literature reported specific polymer-drug systems mathematical models.*

Keywords: chitosan, xanthan, theophylline derivates, drug delivery.

1. Introduction

Chitosan (CS) and Xanthan (Xa) involved in the complex forming, are by far the most studied polysaccharides [1-3]. CS is the N-deacetylated form of chitin, (1→4)-linked 2-acetamide-2-deoxy-ß-D-glucan and presents various substitution degrees for N-acetyl groups. CS also presents amino and hydroxyl groups which are capable of interaction with other partners [4]. Xa, a polysaccharide derived from Xanthomonas Campestris, is very used in food processing and oil industry as a thickener agent and emulsifier. Its backbone consists in (1→4)-β-D-glucose units with a β-D-mannose terminal chain, β-D-glucuronic acid and β-D-mannose which present β-D-(1→2) and β-D-(1→4) linkages [5]. Xa has polyanionic properties, being capable to interact with polycations and to form insoluble

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