

International Conference
Aromatic and Medicinal Herbs in Food

Caro Hotel, Eminescu Conference room,
15-16th June, 2016, Bucharest, Romania

BOOK OF ABSTRACTS

Edible films as oral delivery systems for xanthines extracted from medicinal plants: an experimental design approach

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Abstract

Two formulations of edible films intended for oral delivery of therapeutic xanthines were developed, following an experimental design approach. Gelatin type A and sodium carboxymethylcellulose were used as polymeric matrices with different physico-chemical nature. Caffeine, a well-known methylxanthine, was used as model bioactive molecule, representing overall xanthines (e.g. caffeine, theophylline, theobromine) extracted from medicinal plants. Fourier-transform infrared spectroscopy (FTIR) analysis was performed to outwit the formation of covalent bonds between caffeine and the matrix of edible films. Scanning electron microscopy (SEM) was performed to assess if caffeine was homogeneously dispersed on the matrix of edible films. Simulation of gastrointestinal tract and ex vivo permeability studies across intestinal mucosa were performed to predict the delivery profile of caffeine from developed formulations of edible films. Gelatin type A-based edible films offered a slow release of caffeine whereas sodium carboxymethylcellulose-based edible films promote an immediate release of caffeine.

Keywords: *edible films, sodium carboxymethylcellulose, gelatin type A, xanthines, caffeine.*

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