

4th International Conference and Exhibition on **Materials Science & Engineering** September 14-16, 2015 Orlando, USA

Synthesis and characterization of pure thioureides and its inclusion complexes with 2-hydroxypropyl- β -cyclodextrin (HP- β -CD)

Cristina Stoicescu¹, Andreea Neacsu¹, Carmellina Daniela Badiceanu² and Cornelia Marinescu¹

¹"Ilie Murgulescu" Institute of Physical Chemistry of the Romanian Academy, Romania

²University of Medicine and Pharmacy, Romania

The aim of the present work was to obtain and characterize new compounds which exhibit antimicrobial properties and are efficient in treatment of multidrug resistant infections. The first stage of the synthesis of the compounds N-(p-clorofenil)-N²-(2-tenoil)-tiourea (1), N-(p-iodofenil)-N²-(2-tenoil)-tiourea (2), N-(p-bromofenil)-N²-(2-tenoil)-tiourea (3), N-(p-metoxifenil)-N²-(2-tenoil)-tiourea (4), N-(p-metilfenil)-N²-(2-tienil)-tiourea (5), N-(p-metilfenil)-N²-(2-tenoil)-tiourea (6), N-(p-metilfenil)-N²-(3-tenoil)-tiourea (7) takes place in anhydrous medium for the prevention of acids chloride decomposition in the presence of water trace. In the second stage, the samples were treated with ammonium thiocyanate which was priory dried at 100°C. The inclusion compounds between 2-hydroxypropyl- β -cyclodextrin (HP- β -CD) and some new 2-thiophene carboxylic acid thioureides were also obtained. HP- β -CD is designed to have a high solubility and ability to complex a wide range of molecules with different degree of hydrophobicity. Complexation in organic solvent method was used to obtain the solid complexes with 1:1 stoichiometry. The solid powders of pure thioureides, HP- β -CD and complexes HP- β -CD/thioureide were analyzed by thermal methods (TG/DSC), UV-Vis spectrophotometry and Fourier transform-infrared spectroscopy (FT-IR). The fusion enthalpies of the all pure compounds are: 26.0 kJ/mol (1), 27.6 kJ/mol (2), 22.6 kJ/mol (3), 29.5 kJ/mol (4), 27.3 kJ/mol (5), 22.1 kJ/mol (6), 27.4 kJ/mol (7). Pharmacologically, the analgesic effect by chemical stimulus test and the anti inflammatory effect after intra-plantar administration of dextran and caolin have been performed. Sample (3) has a slightly less analgesic effect compared to acetylsalicylic acid and the sample (4) shows the most intense anti inflammatory action, probably through a cyclooxygenase inhibition mechanism.

Biography

Cristina Stoicescu has completed her PhD in 2009, Department of Applied Physical Chemistry and Electrochemistry, Faculty of Applied Chemistry and Material Science, University "Politehnica" of Bucharest. She is junior researcher at the "Ilie Murgulescu" Institute of the Physical Chemistry. Her areas of competence of the research activity are thermodynamics of liquid mixtures, phase equilibria, correlation and prediction of experimental data.

cstoicescu@chimfiz.icf.ro

Notes: