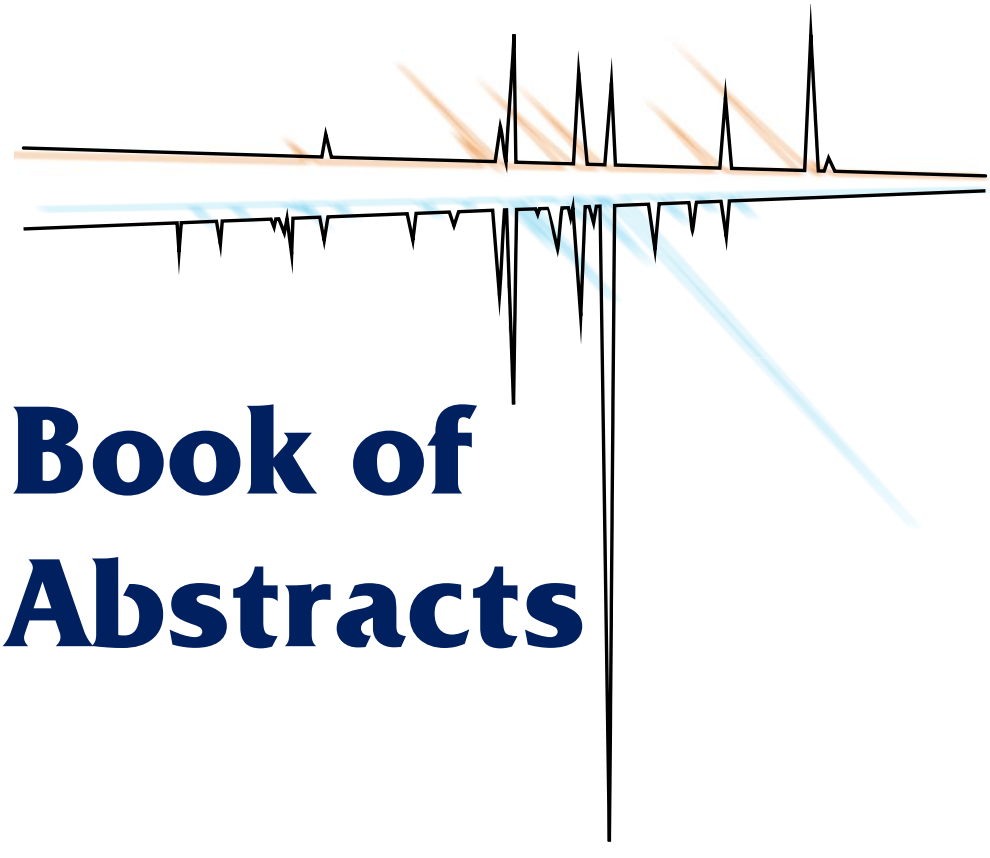
6th IAPC Meeting

Sixth World Conference on Physico-Chemical Methods in Drug Discovery

&

Third World Conference on ADMET and DMPK



Book of Abstracts

Zagreb, Croatia, September 4-7, 2017

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Published by
International Association of Physical Chemists
E-mail: office@iapchem.org, URL: http://www.iapchem.org

For Publisher
Zoran Mandić

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Zoran Mandić

Design, Page Making and Computer Layout
Aleksandar Dekanski

On Line version only

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Organization of IAPC-6 Meeting is supported by

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P 06

pH-dependent solubility profile of desipramine hydrochloride

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Desipramine hydrochloride (Ds·HCl; **Figure 1.**) is a known surface-active molecule, which may form sub-micellar aggregates in slightly acidic solutions. If a neutral or slightly basic solution is prepared from Ds·HCl, it may remain supersaturated for a very long time, as aggregates form. Appearance of aggregates might lead to slow sedimentation. Furthermore, at high pH values oils might form that are more soluble than crystalline form; this was already observed for surface-active compounds [1]. There are many other druglike molecules with similarly challenging properties, which have not been adequately characterized. Thus, much attention must be paid to set up the experimental procedure for precise solubility determinations [2].

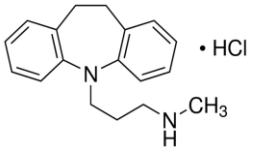

Figure 1. Structure of desipramine hydrochloride

Although solubility data for Ds·HCl can be found in the literature [3], in this study pH-dependent solubility profile of Ds·HCl was studied using slightly different method: pH-ramp shake flask. First, the pH value of Ds·HCl stock solution in 0.15 M phosphate buffer was adjusted to 11.7 in order to minimize supersaturation effect. Then, the pH value in separate samples was adjusted downwards with HCl, to prepare solutions in the pH 1.7-11.7 region. After stirring (6 h) and sedimentation (18 h), PTFE (hydrophobic, pore size 0.22 µm) filters or centrifugation were used for phase separation. Concentration was measured using HPLC with UV/Vis detection. The computer program *p*DISOL-X was used for data processing and refinement of equilibrium constants. Different techniques were used for solid phase characterization.

Acknowledgement: *Ministry of Education, Science and Technological Development of Serbia supported this work (Grant No. 172035 and 172008). The authors gratefully acknowledge Petnica Science Center, Serbia, for the HPLC analysis.*

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